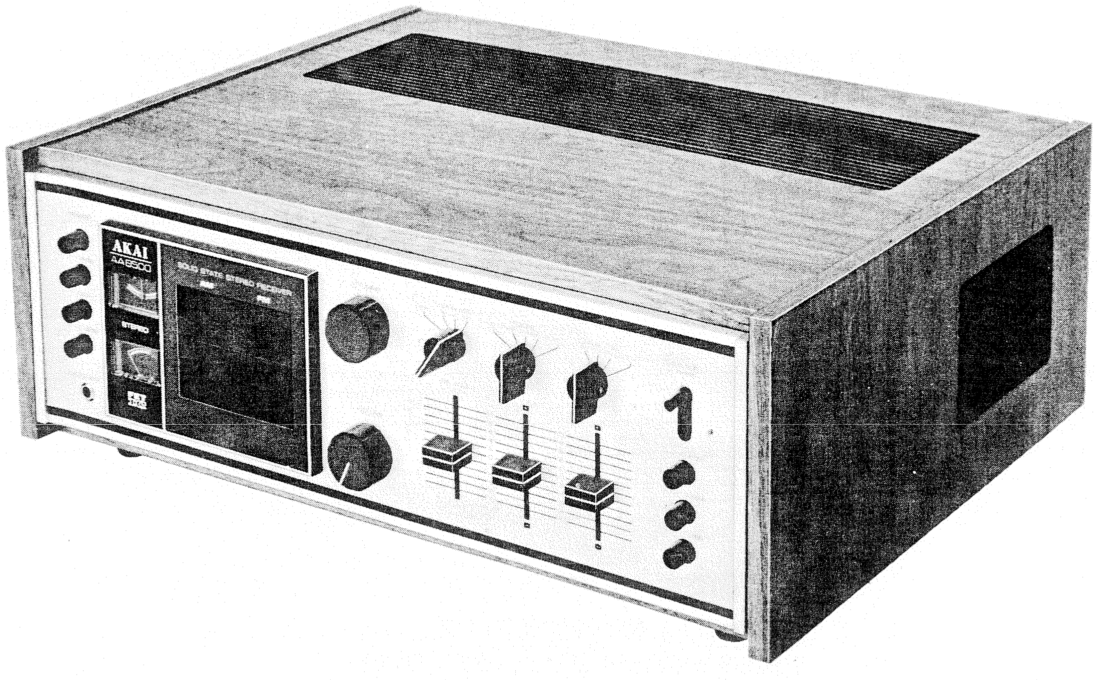
SERVICE MANUAL

AKAI AMPLIFIER

MODEL AA-8500


AKAI
AA6500
SOLID STATE STEREO RECEIVER
STEREO

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I. SPECIFICATIONS

FM TUNER SECTION

RECEIVING FREQUENCY RANGE
: 87.5 to 108.5 MHz (U.S. Ch.)
: 75.5 to 90.5 MHz (JAPAN Ch.)
IF FREQUENCY : 10.7 MHz
SENSITIVITY : 2 μV (IHF) at 98 MHz
SELECTIVITY : Better than 60 dB (±400 kHz)
HARMONIC DISTORTION
: MONO : Less than 0.3% (400 Hz, 100% Mod.)
: STEREO : Less than 1.0% (400 Hz, 100% Mod.)
IMAGE FREQUENCY RATIO
: Better than 90 dB at 98 MHz
IF REJECTION RATIO : Better than 90 dB at 98 MHz
CAPTURE RATIO : Less than 2 dB (IHF)
SPURIOUS RADIATION : Less than 34 dB
MUTING SENSITIVITY : 20 dB ± 2 dB
SIGNAL TO NOISE RATIO : Better than 60 dB
FM STEREO SEPARATION : Better than 35 dB

AM TUNER SECTION

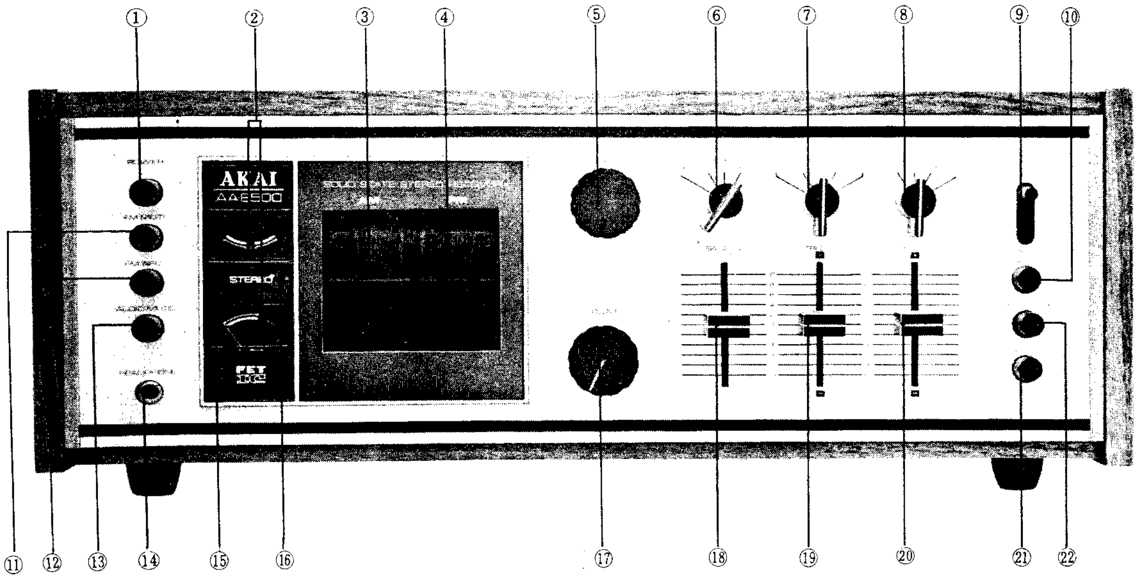
RECEIVING FREQUENCY RANGE
: 520 – 1650 kHz
IF FREQUENCY : 455 kHz
SENSITIVITY : DIRECT : 10 uV (IHF)
: LOOP : 200 uV (IHF)
SELECTIVITY : Better than 30 dB (±20 kHz)
IMAGE FREQUENCY RATIO
: Better than 70 dB
IF REJECTION RATIO : Better than 70 dB
HARMONIC DISTORTION : Less than 1.0% (400 Hz, 30% Mod.)
SIGNAL TO NOISE RATIO : Better than 50 dB

AUDIO SECTION

POWER OUTPUT
: (MUSIC POWER) : 240 W (120 W/120 W) at 4Ω
: 170 W (85 W/85 W) at 8Ω
: (RATED POWER) : 180 W (90 W/90 W) at 4Ω
: 130 W (65 W/65 W) at 8Ω
POWER BAND WIDTH : 20 Hz – 30 kHz (at 8Ω)
FREQUENCY RESPONSE
: (AUX) : 20 Hz – 50 kHz (–3 dB)
: (PHONO) : RIAA ± 1 dB
HARMONIC DISTORTION : Less than 0.05%, at 8Ω, 30 W
INPUT SENSITIVITY
: PHONO : 3 mV (Impedance 50 kΩ)
: AUX. : 150 mV (Impedance 50 kΩ)
: TAPE MONITOR (PIN) : 200 mV (Impedance 50 kΩ)
: TAPE MONITOR (DIN) : 200 mV (Impedance 50 kΩ)
: MAIN : 0.77 mV (Impedance 100 kΩ)

TAPE REC. OUTPUT
: (PIN) : : 150 mV
: (DIN) : 25 mV
HUM AND NOISE (BELOW RATED OUTPUT)
: PHONO : Better than 70 dB
: AUX. : Better than 80 dB
: VOLUME MINIMUM : Less than 2 mV
CHANNEL SEPARATION (AT RATED OUTPUT)
: PHONO : Better than 60 dB (at 1 kHz)
: AUX. : Better than 60 dB (at 1 kHz)
TONE CONTROL
: BASS : 100 Hz ± 10 dB (± 1 dB)
: TREBLE : 10 kHz ± 10 dB (± 1 dB)
LOUNDNESS CONTROL : 100 Hz 8 dB ± 2 dB
(–30 dB FROM VOLUME MAXIMUM)
: 10 kHz 4 dB ± 1 dB
FILTER : HIGH : 10 kHz –5 dB ± 1 dB
: LOW : 50 Hz –9 dB ± 1 dB
SEMI-CONDUCTORS : 65 Silicon Transistors
1 FET
2 IC
29 Diodes
1 VC Diode
1 Tuner Diode
4 Thermisters
POWER CONSUMPTION : 350 W
POWER SOURCE : AC 100 to 240 V AC; 50/60 Hz
DIMENSIONS : 165(H) x 487(W) x 346(D) mm
(6.6 x 19.5 x 13.8")
WEIGHT : 16 kg (35.2 lbs.)

II. CONTROLS & CONNECTION



① POWER SWITCH: Depress to turn "ON"

② FM AND FM/AM SIGNAL STRENGTH METERS (for FM tuning): While observing both meters, rotate TUNING KNOB to tune in broadcasted signals. When signal is strong, the indicator needle of the FM/AM Meter (lower meter) will swing to the right. For good tuning, the needle must be within the green mark at extreme right.
Movement of the FM Meter (upper meter) needle to the left and right (indicates the strength of the broadcasted signals. Mid-scale indicates perfect tuning. Turn TUNING KNOB until perfect tuning is attained.

③ AM DIAL SCALE: With this new type dial mechanism, the Dial Scales are much easier to see. The AM DIAL SCALE will light up when the SELECTOR SWITCH is set to "AM" position.

④ FM DIAL SCALE: The FM DIAL SCALE will light up when the SELECTOR SWITCH is set to "FM" position.

⑤ TUNING KNOB: For selection of AM or FM stations. Rotate Knob for receiving desired broadcasted signals.

⑥ SPEAKER SYSTEM SWITCH: For selection of "A + B", "A", or "B" speaker systems. When at "Off" position, the sound is cut off from all speaker systems. (Use this setting for private headphone listening.)

⑦ MODE SWITCH: For automatic selection of speaker systems.

Left:	Left speaker(s) only
Right:	Right speaker(s) only
Stereo:	Left and Right (Stereo tracks)
L & R:	Left and Right (monaural track through both speakers)
Rev:	Reverse left and right speaker sound (can be used to check balance of sound).

⑧ SELECTOR SWITCH: Set TAPE MONITOR SWITCH to "SOURCE" and select program source.

AM:	For AM Radio Reception
FM:	For FM Radio Reception
PHONO:	For Record player
AUX:	For Tape Recorders and external tuners or other sources connected to AUX terminals at rear of amplifier (high output players, ceramic or crystal pick-up, etc).

⑨ TAPE MONITOR SWITCH: For sound during recording or playback with a 3-head tape recorder, depress to "Tape Play" position. For sound from other sources (Record Player, FM, AM, etc.), set to "Source" position.

⑩ LOUDNESS SWITCH: Boosts bass and treble response at low volume level.

⑪ FM MUTE SWITCH: For use when receiving FM signals. When this switch is depressed and no signals are being received, interference is muted. When signals are being received, interstation tuning noise is automatically eliminated. (Do not use when tuning in weak stations).

⑫ FM AFC (Automatic Frequency Control) SWITCH: After the FM station has been tuned in and the signal strength meters indicate perfect tuning, depress this switch for finer tuning-perfection (perfects signal frequency even to point beyond capacity of the human ear).

⑬ AUDIO MUTE SWITCH: Reduces audio level to soft audibility. When switch is released audio level will be restored to former setting.

⑭ STEREO HEADPHONE JACK: Accomodates Stereo Headphones for monitoring or private listening. (Turn Speaker Switch to "Off" position for private listening). Dynamic Stereo type headphones should be used. AKAI Model No. ASE-20 is highly recommended.

⑮ FM/AM SIGNAL STRENGTH METER (for AM tuning): When receiving AM Signal broadcasts, the needle at the right scale indicates perfect tuning. When the broadcasted signals are very strong, the needle will point to the extreme right.

⑯ FM STEREO TUNING INDICATOR LAMP: When FM Stereo signals are being received, this lamp will automatically light.

⑰ VOLUME CONTROL KNOB: For overall adjustment of sound level (both channels). Turning Knob clockwise increases the volume.

Caution:
Before changing input or connections, etc., make sure that the Volume Control Knob is turned to minimum position.

⑱ BALANCE CONTROL KNOB: For balancing volume of left and right speakers. Sliding Knob upward will increase the volume of the left channel by reducing the output of the right channel and vice-versa.

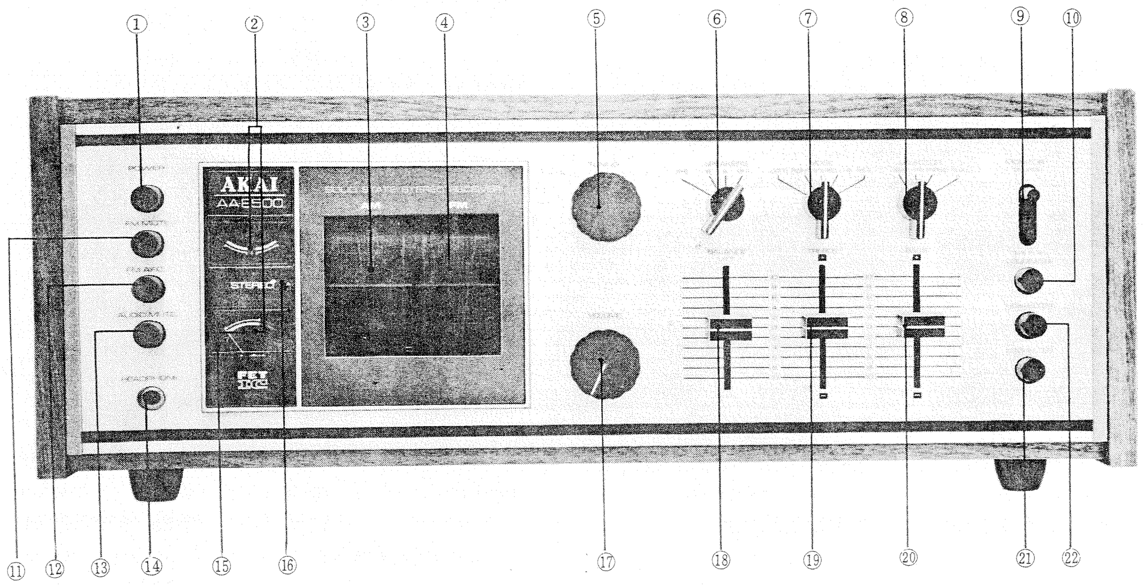
⑲ TREBLE CONTROL KNOB: Use to control high range frequency response. Slide Knob upward to increase treble sound and downward to decrease treble sound.

⑳ BASS CONTROL KNOB: Use to control low range frequency response. Slide Knob upward to increase base sound and downward to decrease bass sound.

㉑ LOW FILTER SWITCH: An aid in the elimination of low frequency disturbances such as turntable rumble, etc. Use only when necessary.

㉒ HIGH FILTER SWITCH: An aid in the elimination of high frequency surface noise such as noise caused by nearby electrical appliances, noise from old or worn tapes, or phonograph record scratch, etc. Use only when such noise exists.

II. CONTROLS & CONNECTION



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⑦ MODE SWITCH: For automatic selection of speaker systems.

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AM:	For AM Radio Reception
FM:	For FM Radio Reception
PHONO:	For Record player
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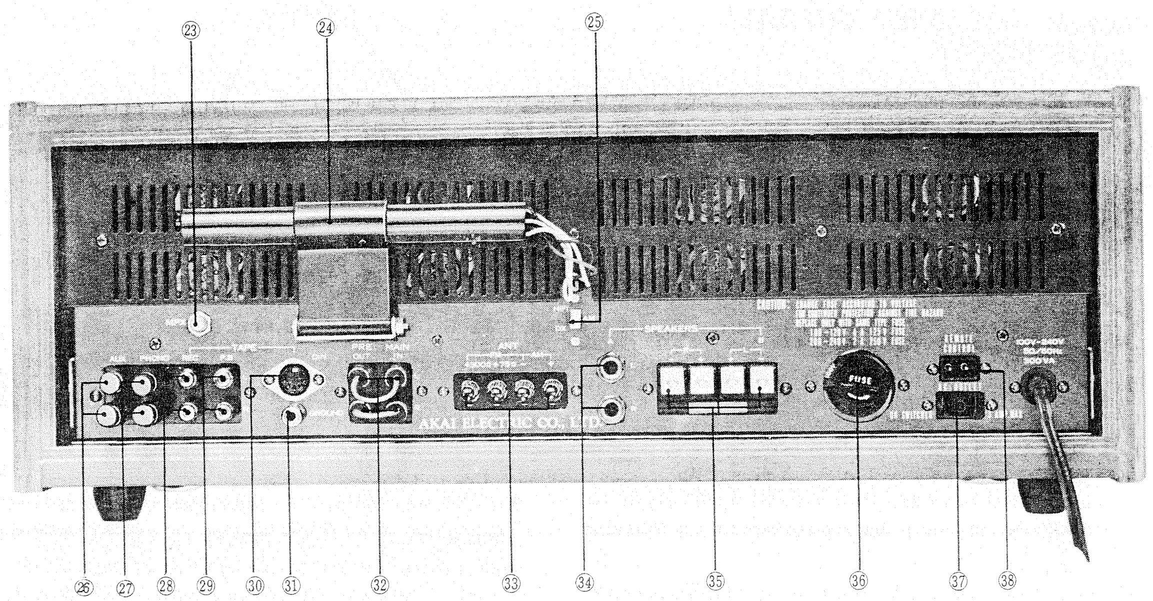


㉓ MPX (Multiplex Channel Separation Adjuster): For adjusting channel separation. Please do not touch or re-position (requires precise adjustment by qualified service engineer).

㉔ AM BAR ANTENNA: For AM broadcast reception, pull AM Bar Antenna away from back of amplifier and properly position for good reception. If broadcasted signals cannot be heard clearly, use AM antenna terminals.

㉕ AM HI-FI/DISTANCE SWITCH: Set according to strength of signals. If AM wave signals are strong, set to "HI-FI" position. If signals are weak, set to "DX" position.

㉖ AUX JACK: Use for relatively high voltage input such as radio tuner, output from the amplifier of a tape recorder or a recorder with a ceramic or crystal cartridge.

㉗ PHONO JACK: Can be used with magnetic cartridge (MM, MC, or IM). To avoid hum, these jacks must be shorted (shorting plugs provided) when not in use.

㉘ TAPE REC. JACK: Connects to line input (phono/radio) of a tape deck for recording of radio or phono programs. Recording source is selected by operating the SELECTOR SWITCH.

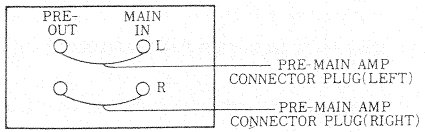
㉙ P.B. JACK: Connects to the line or pre-amp output of a tape deck and permits monitoring of the tape playback through use of the TAPE MONITOR SWITCH.

㉚ DIN JACK: This one-connection system can be used instead of Tape Rec. Jack and Tape P.B. Jack if the tape recorder has a corresponding connection. If your tape recorder is not equipped with a DIN Jack, AKAI Connection Cord DR-110 can be used.

㉛ GROUND TERMINAL: This terminal is for use in grounding the amp with a tape recorder, or with a record player. If this connection causes excessive noise, connect a thick cable from these terminals to a buried underground metal bar. Also when using an outside antenna, these terminals should be grounded to an under ground metal bar as described above.

Caution:
Do not connect to a gas pipe or gas line, etc.

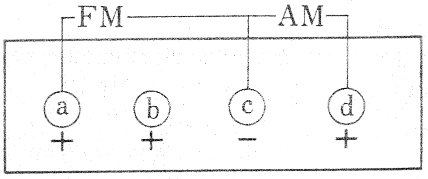
㉜ PRE-AMP OUTPUT JACK & MAIN AMP INPUT JACK:



With the pre-main amp connector plugs connected as shown in the above figure, the premain amplifiers function normally. Removing these plugs separates the main amp from the pre-amp and only the main amp functions. This separation permits multiple amplifier operation through the main amplifier only.

Caution:
Be sure that the connection plugs are connected during normal operation.

㉝ ANTENNA TERMINALS



AM: (c + d) can be used if the signal is not strong enough to be picked up by the Bar Antenna.
FM: (a + b) For connection of 300Ω antenna feeder.
(a + c) Use when connecting a 75Ω coaxial cable with antenna.

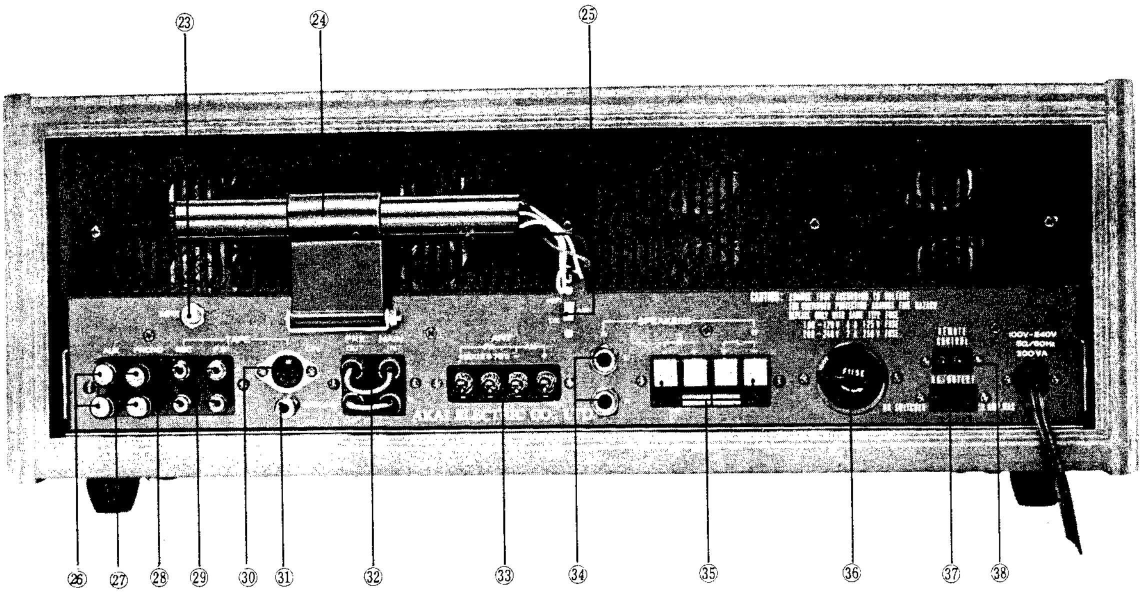
㉞ SPEAKER JACKS: For connection of a single + − Plug for "A" Speaker System operation. AKAI Speaker Cord AS-170 (optional accessory) is recommended.

㉟ SPEAKER TERMINALS: Supplies output to Speaker System "B" Connect plus and minus terminals to correspond with polarity of speakers.

㊱ UNIVERSAL VOLTAGE SELECTOR & FUSE: Permits selection of voltage from 100 to 240V. Fuse must be changed to correspond with voltage.
100−120V 3A
200−240V 1.5A

㊲ AC OUTLET: Extra power supply for record player or tape recorder. This 300W unswitched outlet is not interlocked with the front panel power switch (power is applied even with the unit turned off).

㊳ REMOTE CONTROL SOCKET (for Audio Mute): With AKAI's remote control unit (optional accessory), the audio mute function can be remote controlled. Plug remote control cable into this socket.



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㉘ TAPE REC. JACK: Connects to line input (phono/radio) of a tape deck for recording of radio or phono programs. Recording source is selected by operating the SELECTOR SWITCH.

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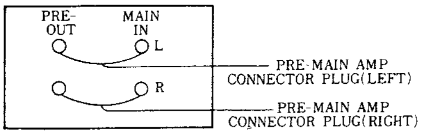
Caution:
Do not connect to a gas pipe or gas line, etc.

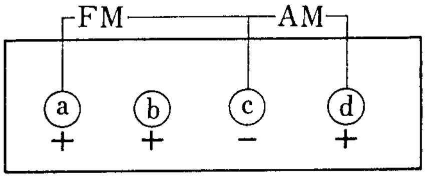
㉜ PRE-AMP OUTPUT JACK & MAIN AMP INPUT JACK:


PRE-OUT
MAIN IN
L
R
PRE-MAIN AMP CONNECTOR PLUG(LEFT)
PRE-MAIN AMP CONNECTOR PLUG(RIGHT)

With the pre-main amp connector plugs connected as shown in the above figure, the premain amplifiers function normally. Removing these plugs separates the main amp from the pre-amp and only the main amp functions. This separation permits multiple amplifier operation through the main amplifier only.

Caution:
Be sure that the connection plugs are connected during normal operation.

㉝ ANTENNA TERMINALS



AM: (c + d) can be used if the signal is not strong enough to be picked up by the Bar Antenna.
FM: (a + b) For connection of 300Ω antenna feeder.
(a + c) Use when connecting a 75Ω coaxial cable with antenna.

㉞ SPEAKER JACKS: For connection of a single + − Plug for "A" Speaker System operation. AKAI Speaker Cord AS-170 (optional accessory) is recommended.

㉟ SPEAKER TERMINALS: Supplies output to Speaker System "B" Connect plus and minus terminals to correspond with polarity of speakers.

㊱ UNIVERSAL VOLTAGE SELECTOR & FUSE: Permits selection of voltage from 100 to 240V. Fuse must be changed to correspond with voltage.
100−120V....................... 3A
200−240V....................... 1.5A

㊲ AC OUTLET: Extra power supply for record player or tape recorder. This 300W unswitched outlet is not interlocked with the front panel power switch (power is applied even with the unit turned off).

㊳ REMOTE CONTROL SOCKET (for Audio Mute): With AKAI's remote control unit (optional accessory), the audio mute function can be remote controlled. Plug remote control cable into this socket.

III. TUNER & AMPLIFIER ADJUSTMENT

1. POWER AMPLIFIER CIRCUIT ADJUSTMENTS

In case power amplifier circuit has been repaired or power transistors have been replaced, the following adjustments are necessary for each channel:

1-1 No-signal Current Adjustment of Power Amplifier

- a) Connect a 1.5 A full scale DC Ammeter in place of the protector fuse in the left channel amplifier. An Ammeter with range selector covering 1.5 – 0.1 A is recommended.
- b) Set VOLUME Knob (VR-403) on the front panel to the full counterclockwise (minimum) position.
- c) Turn Potentiometer VR-202 (1 KΩB, L. CH.) of the power amplifier printed board full counterclockwise, and VR-201 (100 KΩB, L. CH.) to the half way position of its movable range.
- d) Depress the power switch to "ON" position, and adjust VR-202 so that the Ammeter indicates 80 mA (0.08 A).
- e) Adjust VR-202 of the right channel amplifier in the same way.

1-2 DC Balance Adjustments

Adjust the DC Balance after completing current adjustment of the power amplifier.

- a) Connect the audio oscillator to the AUX. input terminals of both the left and right channel amplifiers, and supply a 1,000 Hz sine wave, setting the oscillator output to zero.
- b) Connect an 8Ω 120 W resistor to the left and right channel speaker terminals, and connect the oscilloscope across this resistor (see Fig. 1).
- c) Set VOLUME Knob on the front panel to the full clockwise (maximum position).
- d) Gradually increase the output of the audio oscillator until the wave form on the oscilloscope (see Fig. 2) begins to be clipped. Adjust the left channel potentiometer VR-201 (100 KΩ) and the right channel VR-201 (100 KΩ) so that both upper and lower peaks of the wave forms begin to be clipped simultaneously at the same point of the curve.
- e) In case an audio oscillator or an oscilloscope is not available, adjust Potentiometer VR-201 (L. CH.) and VR-201 (R. CH.) so that the voltage between the plus side of the large capacity condenser which is connected to the speaker and ground is half of the supply voltage (80 V). At this time, the VOLUME knob on the front panel should be kept at minimum position.

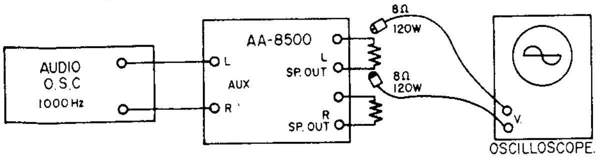


Fig. 1

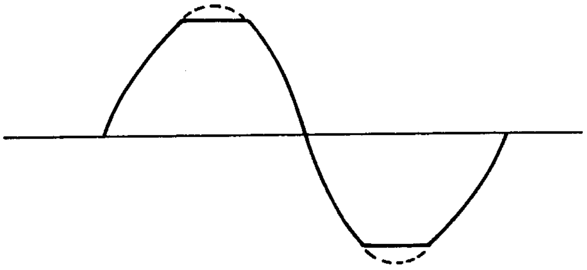


Fig. 2

2. ADJUSTMENT OF PROTECTIVE CIRCUIT FOR POWER TRANSISTORS

Power transistors will be destroyed by an over-current when the output terminals of the speaker are shorted. To protect them, a protective circuit automatically operates to cut off the supply voltage in the driver stage and control the current to the power transistors.

- a) Connect instruments as shown in Fig. 1 and use a VTVM in place of the oscilloscope.
- b) Turn VOLUME knob on the front panel to the fully wound clockwise (maximum position).
- c) Connect a 8 Ω 120 W resistor to the speaker output terminals as a load, and an Oscilloscope across the resistor.
- d) Set Potentiometer VR-101 (100 KΩB), the adjusting operation point of the protective circuit, to the fully wound counterclockwise position.
- e) Gradually increase the output of audio oscillator, which is connected to AUX terminals, until the wave form on the Oscilloscope (see Fig. 2) begins to be clipped.
- f) Then, exchange the load resistor at the speaker output terminals with a 4 Ω 20 W resistor. At this position, adjust Potentiometer VR-101 to obtain a speaker output nearing the critical point of zero.
- g) Exchange the load resistor at the speaker output terminals with an 8 ohm 120 W resistor. Adjust the Oscillator output so that the wavefrom on the oscilloscope is about 1/3 that of procedure 2. e). At this condition, check to see whether the protective circuits operates protective circuits operates properly while shorting speaker terminals.

3. TUNER SECTION ADJUSTMENTS

3-1 FM IF Circuit (AA-858 printed board) Adjustment

FM-IF circuit adjustment should be made with calibrated instruments because this adjustment has a great influence on tone quality, separation, S/N, etc. in Stereo FM reception.

(1) Instrument Connection

- a) Connect the output lead of the Sweep Generator to test points (1) and (2) on the IF Printed Board (AA-858).

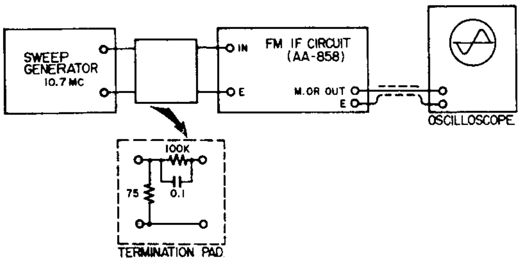

SWEEP GENERATOR
10.7 MC
IN
E
FM IF CIRCUIT
(AA-858)
M.OR OUT
E
OSCILLOSCOPE
100K
75
0.1
TERMINATION PAD

Fig. 3

b) Connect the input lead of the Oscilloscope to test points (11) and (12).
c) Set FREQUENCY BAND of the Sweep Generator to 10.7 MHz.
d) Adjust V-POSITION, SWEEP-WIDTH and CENTER-FREQUENCY respectively so that the wave forms are in the center of the oscilloscope.
e) Set STEREO MODE SWITCH on the front panel of AA-8500 to "MONO" position SELECTOR SWITCH to "FM" position and MUTE SWITCH to "Off" position.
f) TUNING DIAL should be set to a non-receiving point on the dial.

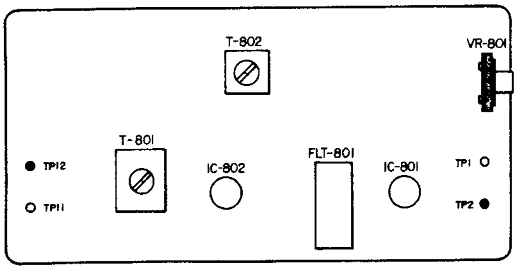
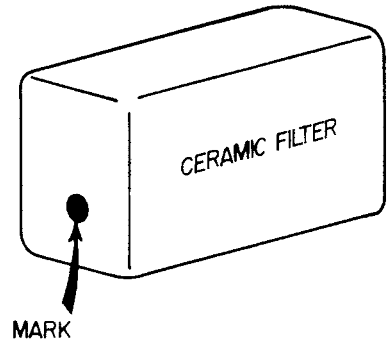

T-802
VR-801
T-801
● TP12
○ TP11
IC-802
FLT-801
IC-801
TP1 ○
TP2 ●

Fig. 4

(2) Adjustments
a) For adjustment of cores of FM-IF transformers, adjust with 70 dB output level of the Sweep Generator.
b) Adjust the upper and lower cores of T-801 to obtain the waveform shown in Fig. 5. Adjust to maximum amplitude and proper linearity between ±150 kHz markers.
c) Amplitude can be adjusted at the upper core of T-801 (left and right symmetry), and linearity can be adjusted at the lower core.
d) There are 2 adjustment points for T-801. Adjust lower part at bottom position and upper part at top position (the upper part will protrude from one end of the coil and the lower part from the other end). This particular adjustment is made at the upper position.
e) Because FLT-801 is a ceramic filter, the respective frequency responses cause the center frequency of 10.7 mHz to slightly fluctuate.

Ceramic Filter Center Frequency

Mark	Center Frequency	Tolerance
Green	10.62 MHz	±30 kHz
Blue	10.66 MHz	"
Red	10.70 MHz	"
White	10.74 MHz	"
Yellow	10.78 MHz	"


CERAMIC FILTER
MARK

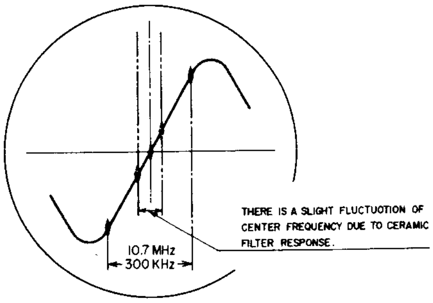

THERE IS A SLIGHT FLUCTUATION OF CENTER FREQUENCY DUE TO CERAMIC FILTER RESPONSE.
10.7 MHz
300 KHz

Fig. 5

3-2 Connection with Front End
(1) Instrument Connections
Use the same instruments as used in item 1), and connect the Sweep Generator output lead to FM antenna terminal and the input lead of the Oscilloscope to test point (11) and (12).

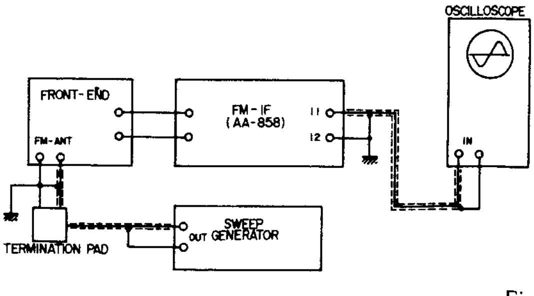

OSCILLOSCOPE
FRONT-END
FM-ANT
FM-IF
(AA-858)
11
12
IN
SWEEP GENERATOR
OUT
TERMINATION PAD

Fig. 6

(2) Turn the core of the output transformer T_2 on the front end so that the horizontal stripes visible in the center of the waveform in Fig. 8 and maximum amplitude is located in the center of the S-shaped curve. At this time, the horizontal stripe should be symmetrical at about the center line.

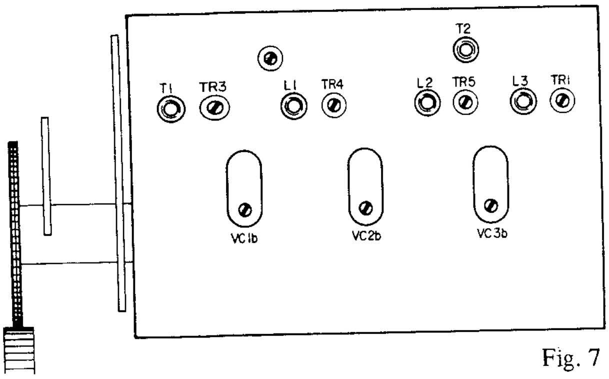


Fig. 7

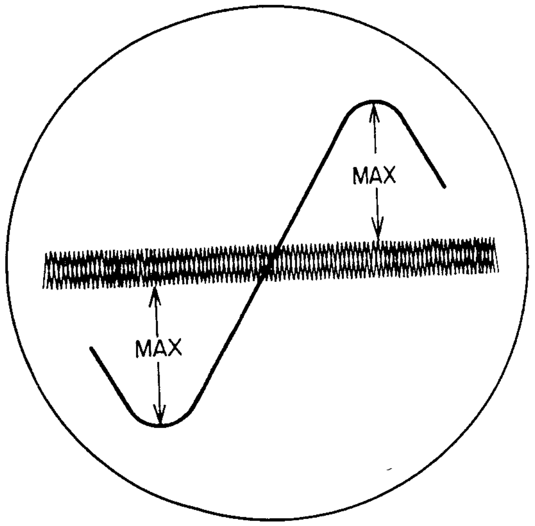


Fig. 8

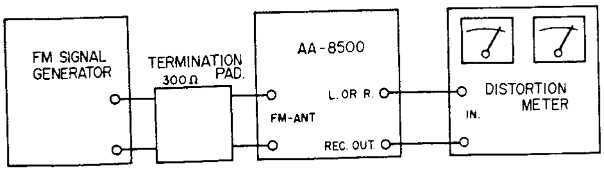


Fig. 9

3-3 Adjustment of FM Reception Frequency Range

(1) Instrument Connections

a) Connect the Signal Generator (MSG-276A) output lead to the FM antenna terminals of AA-8500 through the 300 Ω terminal pad.

b) Set SELECTOR switch of AA-8500 to the FM position, STEREO MODE switch to IN and AFC to OUT.

c) Connect the Distortion Meter to "TAPE-REC" terminal on rear panel (See Fig. 9).

(2) Adjustments

a) Set the Signal Generator frequency to 87.5 MHz (internal modulation 400 Hz, 75%), and the output to 60 dB (1 mV).

b) Set the tuning dial of AA-8500 to the left end, and adjust L_2 of the front end (see Fig. 7) so that the Distortion meter level indicates maximum.

c) Set the Signal Generator frequency to 108.5 MHz. Set the tuning dial of AA-8500 to the right end. Adjust C_0 (see Fig. 7) on the front end so that the Distortion meter level indicates maximum.

d) Repeat procedures b) and c) two or three times.

3-4 FM Tuner Tracking Adjustment

(1) Instrument Connections

Use the same instruments as used in item 3-3 (Fig. 9), and connect them in the same way.

(2) Adjustments

a) Set the signal generator frequency to 90.0 MHz (internal modulation 400 Hz, 75%), and the output to 15 dB.

b) Turn the tuning dial of AA-8500 to receive the 90.0 MHz signal. (Set SIGNAL GENERATOR to the position where the distortion factor on the meter is approximately 3%).

c) Adjust the cores of L_1 and T_1 (see Fig. 7) on front end of AA-8500 so that the Distortion meter level indicates maximum and the distortion factor is minimum.

d) Set the Signal Generator frequency to 106 MHz, then turn the tuning dial of AA-8500 to receive this signal. Adjust the trimmer condensers VC1a and VC2a of the tuning variable condenser in the front end so that the Distortion meter level indicates maximum and minimum distortion factors.

e) Repeat procedures c) and d) two or three times.

3-5 Tuning Indicator Check and Muting Adjustment

a) Use the same instruments as used in item 3-3 and connect them in the same way. (Fig. 9) Set the signal generator frequency to 98 MHz, and the output to 60 dB (1 mV). Turn the tuning dial of AA-8500 to receive this signal.

b) Then decrease the attenuator of the Signal Generator to 20 dB and change the FM-MUTE SWITCH to "IN" position. Adjust VR-201 (50 KΩ -VR) of the FM IF BOARD (2007) until the distortion meter level indicates the critical point of "Zero".

c) Next, set the signal generator output to 60 dB (1 mV) and make sure that the upper tuning indicator deflects more than 7 mm to both sides from beginning to end of signal reception. (If it is unbalanced, adjust the upper core of T-801). At this time, the distortion factor should be within 0.5% (If it is more than 0.5%, adjust the lower core of T-801).

d) At this time, check to see that the lower tuning indicator is within the green area. If it is not within the green area, the core of T-802 must be adjusted until the needle indication is correct.

e) If the upper tuner indication is "off-center" (about 7 mm to left or right), set AFC Switch to IN position and confirm that the needle returns toward center position.

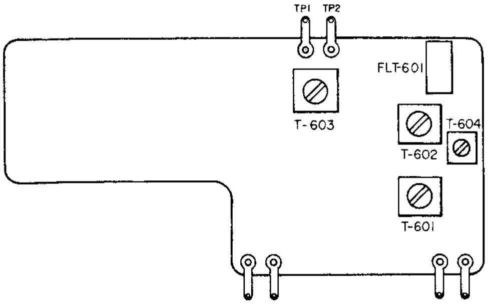


Fig. 10

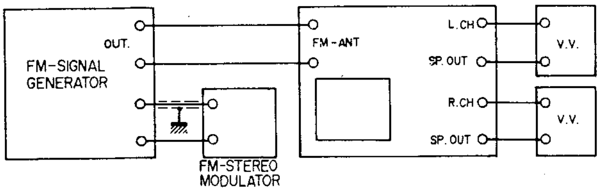


Fig. 11

4. SEPARATION ADJUSTMENT

4-1 Instruments Required:
FM Signal Generator
Stereo Modulator
AC Voltmeter (VTVM)

4-2 Instrument Connections:

a) Adjust PILOT SIGNAL 19 kHz of the FM stereo modulator to 10% modulation and adjust MAIN SIGNAL (L + R) of the FM stereo modulator to 400 Hz, 90%. Then connect output to EXT. MOD terminals of the FM Signal Generator.

b) Set the FM Signal Generator to EXT. MOD and its modulation to 100%.

c) Set the FM Signal Generator frequency to 98 MHz and the output voltage to 60 dB (1 mV). Connect output to the FM-ANT terminals of Model AA-8500.

d) Connect an 8 Ω 120 W dummy load resistor to the speaker terminal of AA-8500 and a milli-voltmeter (VTVM) to both terminal ends.

e) Receive signal from the FM Generator by tuning the AA-8500. Adjust VOLUME on the front panel so that the milli-voltmeter indicates +10 dBm. (Stereo Mode)

f) Turn MPX-SEPARATION variable resistor VR-501 located at the left end of the rear panel of AA-8500 fully clockwise.

g) Set the FM stereo modulator signal to "MAIN" (L + R), and check whether the outputs of both channels are balanced. If they are out of balance, adjust by turning BALANCE knob on the front panel.

h) Set the FM stereo modulator signal to "L" and adjust T-601, T-602 and T-603 so that the milli-voltmeter connected to R CH. indicates minimum. Then adjust VR-501 so that R CH. output becomes minimum.

i) Set the FM stereo modulator signal to R CH. and note the indication of the milli-voltmeter connected to L CH. Then re-adjust T-502 and VR-501 so that the leakages of R CH. and L CH. are as closely balanced as possible.

4-3 For adjustment of 19 kHz Filter (T-604), follow the same procedure outlined in item 4-2 (a) (b) (c) and

(d) Connect a milli-voltmeter to TP-2 and connect TP-1 to ground.

(e) Adjust core of T-604 so that the milli-voltmeter indicates minimum.

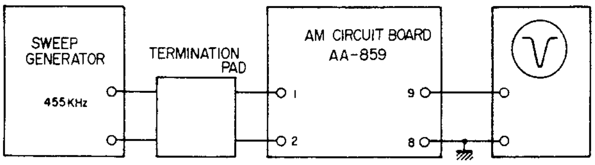


Fig. 12

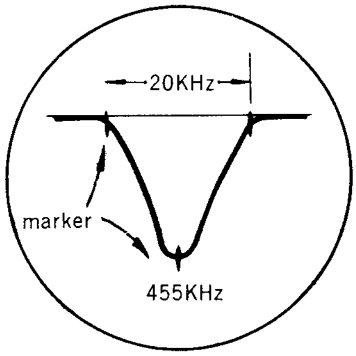


Fig. 13

5. AM-IF CIRCUIT ADJUSTMENT

5-1 Instrument Connections

5-2 Adjustments

a) Connect the Sweep Generator output lead to test point (1) and (2) of the AM-IF circuit board (AA-859). Connect the oscilloscope input lead to test point (9) and (8). (Fig. 12).

b) Set the Sweep Generator FREQUENCY BAND to 455 kHz. Adjust V-POSITION, SWEEP-WIDTH, and CENTER FREQUENCY respectively so that the waveform is at the center of the Oscilloscope.

c) Turn SELECTOR Switch on the front panel of AA-8500 to AM position, VOLUME to minimum position, and set AM Sensitivity SELECTOR Switch (rear panel) to DX position. Then adjust the cores of T-903 (yellow), T-904 (white), and T-905 (black) to obtain the waveform as shown in Fig. 13.

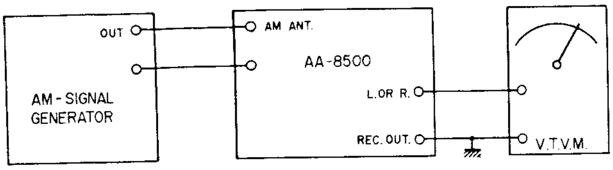


Fig. 14

5-3 AM Receiving Frequency Range Adjustment

(1) Instrument Connections

a) Connect the AM signal generator to the AA-8500 AM antenna terminals. Connect the VTVM to Left or Right channel (TAPE REC Terminal on rear panel).

b) After setting AA-8500 to AM, set the dial to the left end. Set the AM signal generator to 400 Hz, 30% internal modulation, frequency to 520 kHz, and output to 40 dB (100 μV).

c) Adjust the core of AM local oscillator transformer T-902 on AM-IF printed board (AA-859) so that the milli-voltmeter indicates maximum.

d) Then, turn the tuning dial of the AA-8500 to the right end. Set the AM signal generator frequency to 1,650 kHz and adjust trimmer condenser VC3b of the AM local oscillator variable condenser of the front end so that the milli-voltmeter indicates maximum.

e) Repeat procedures c) and d) two or three times.

5-4 AM Tuner Tracking Adjustment

(1) Instrument Connections

Use the same instruments and connections as shown in (Fig. 14).

(2) Adjustment

a) Set the AM signal generator frequency to 600 kHz (internal modulation 400 Hz, 30%) and the output to 50 dB (310 μV).

b) Turn the dial of AA-8500 to receive the 600 kHz signal.

c) Adjust the RF transformer to T-901 on the AM-IF printed board (AA-859) and core of the Ferrite Bar Antenna so that the milli-voltmeter which is connected to the speaker terminals indicates maximum.

d) Next, set the AM signal generator frequency to 1,400 kHz, and turn the tuning dial of AA-8500 to receive the 1,400 kHz signal. Adjust trimmer condensers VC1b and VC2b which are variable condensers on the front end so that the milli-voltmeter indicates maximum.

e) Repeat procedures c) and d) two or three times.

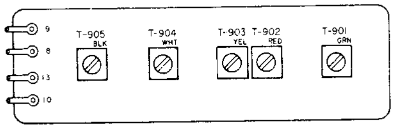


Fig. 15

6. DIAL MECHANISM ADJUSTMENT

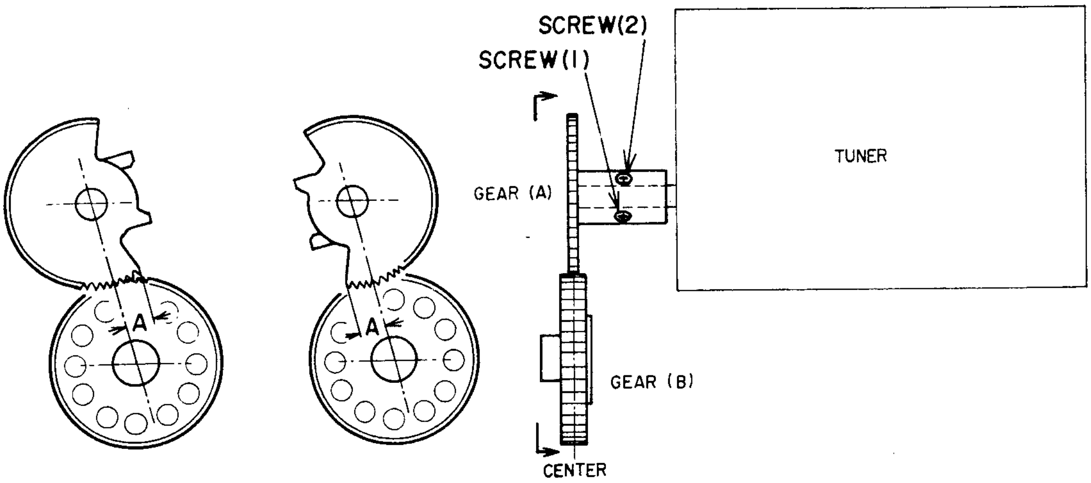


Fig. 16

1) Adjust Screws (1) and (2) so that as the dial is rotated from end to end, the teeth of the fan-shaped gear (last tooth on both ends) are symmetrical (left/right) and comes to the center of the meshing gear.

2) Adjustment is made with dial scale at extreme top position (knob turned to extreme left). Tighten screws (3) and (4) so that dial drum is in exact center of dial scale (Fig. 17) and at position where needle lines (right and left) are exactly aligned with horizontal line at middle of dial (as shown in Fig. 18).

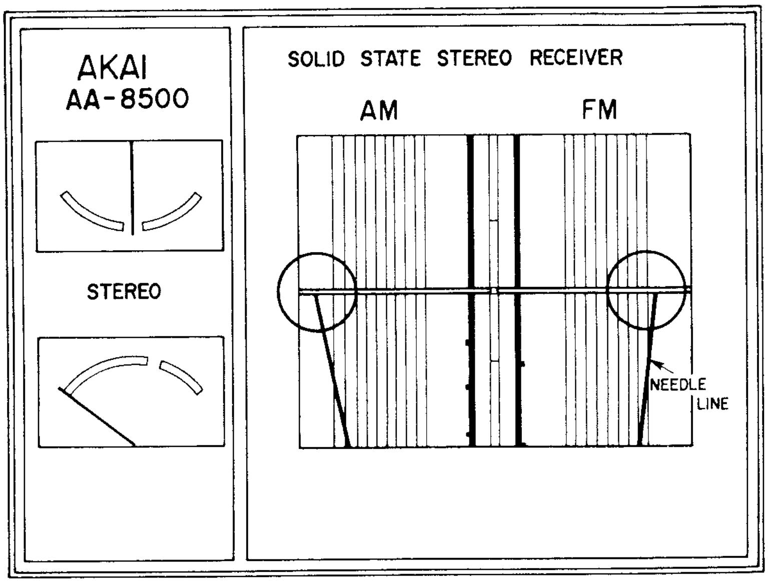

AKAI
AA-8500
STEREO
SOLID STATE STEREO RECEIVER
AM
FM
NEEDLE LINE

Fig. 17

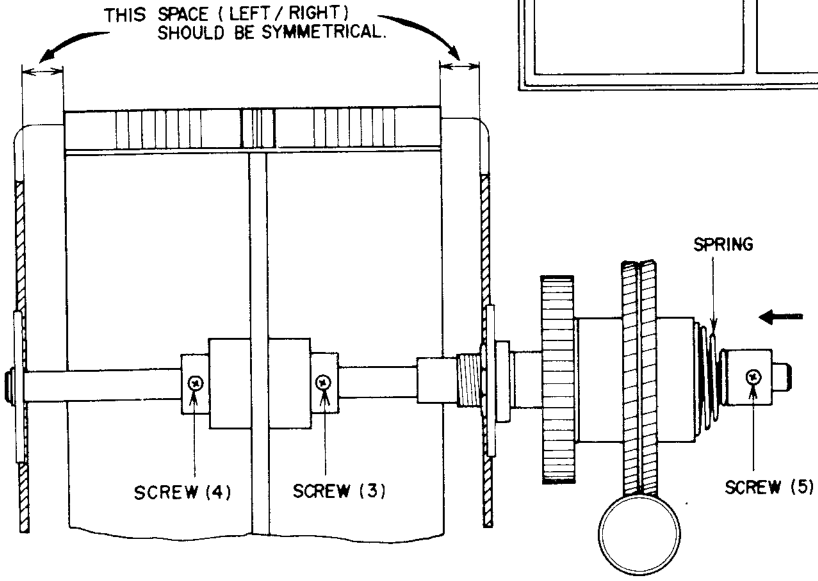

THIS SPACE (LEFT/RIGHT) SHOULD BE SYMMETRICAL.
SPRING
SCREW (4)
SCREW (3)
SCREW (5)

Fig. 18

3) If tension is loose at screw (5), it becomes the source of backlash when dial is rotated. In this instance, tighten screw (5) for stronger spring tension.
4) Because the knob rotation holder prop moves slightly when the tuning knob is turned, when the holder prop comes to extreme front position, with screw (6), stationary metal fitting. When the dial knob is rotated within it's complete rotable range, there should be no substantial change.

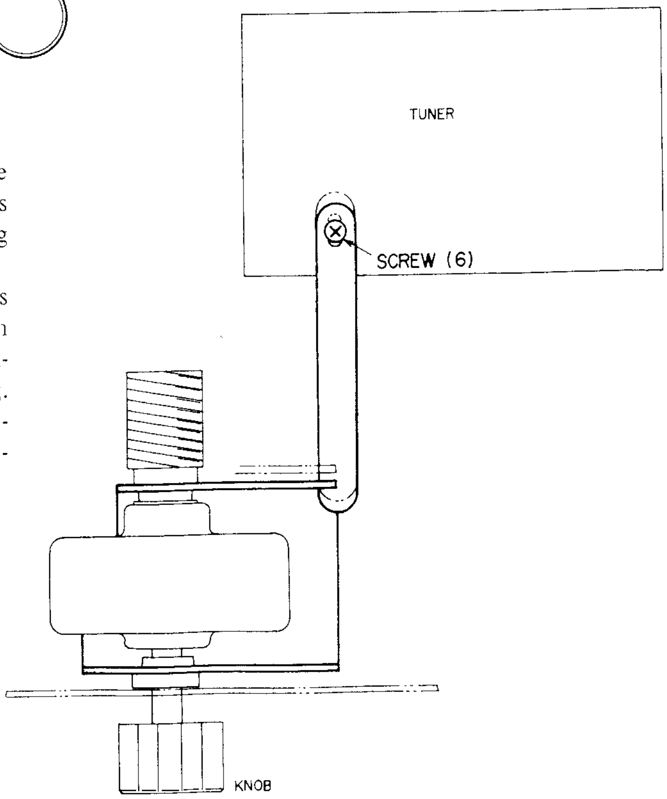

TUNER
SCREW (6)
KNOB

Fig. 19

IV. TROUBLE SHOOTING CHART

NO SOUND

Symptom	REMARKS	
Defective speaker system.	● Speaker cables open or shorted.	● Check speaker terminals for looseness.
	● Speaker voice coil open.	● Repair or replace speaker.
No electrical supply.	● Absence of power supply.	
	● Defective power switch.	
	● Line cord plug has faulty contact or is disconnected.	
	● Line fuse blown.	
Blown fuse upon replacement.	● Short in power transformer.	● Replace transformer.
	● Shorted diodes for D-101 to D-109.	● Replace defective diodes.
	● Shorted electrolytic capacitors: C-103 to 107, C-109, 110, 116.	● Replace defective capacitors.
Pilot lamp lights, but no sound from speaker.	● Protection circuit in operation.	● Check speaker output terminals and leads for short.
	● Speaker changeover switch at “PHONO”.	● Set to “A” or “B” position.
	● “TAPE MONITOR” switch at “TAPE PLAY”.	● Set switch to “SOURCE”.
Internal Failure.	● Inoperative B power source Circuit.	● Secondary winding in power transformer open. Resistors R-101 to R-105 open.
	● Fuses F-102 and F-103 (protecting power transistors) blown.	● Shorted power transistors TR-206 to TR-209, TR-256 to TR-259.
Sound from one channel only.	● Improper position of balance control.	● Adjust balance control.
	● Defective channel audio circuit.	● Check for defect by measuring voltages at check points, comparing them with normal channel.

LOW SOUND LEVEL

Symptom	REMARKS	
Low sound on both channels.	● Defective power supply circuit.	● Check wiring and voltage.
Low sound on the channel.	● Defective speaker.	● Replace Speaker.
	● Discharged coupling capacitor.	● Replace defective capacitor(s).

DISTORTION

Symptom	REMARKS	
Distorted sound on both channels.	● Defective power supply circuit.	● Check AA-851.
Distorted sound on one channel.	● Defective speaker.	● Replace speaker.
	● Leaky coupling capacitor(s).	● Replace defective capacitor(s).
	● Defective or unbalanced power transistors.	● Adjust or replace.

HUM AND NOISE

Symptom	REMARKS	
Excessive hum.	● Discharged capacitor in power supply circuit.	● Check C-104 to C-107, C-109, 110, 116.
	● Defective rectifying diodes in power supply circuit.	● Check D-101 to D-109.
	● Defective transistor in power supply filter circuit.	● Replace TR-101 or TR-102 for short.

Symptom	REMARKS	
Excessive noise.	● Defective transistor in pre-amplifier circuit.	● Check TR-301, TR-351, TR-401 to TR-404, TR-451 to TR-454, TR-501, TR-502, TR-551 and TR-552.
	● Defective volume control variable resistor.	● Check VR-403.
Inoperative loudness control.	● Defective loudness circuit AA-853.	● Check C-301, 302, C-351, 352, R-301, 302, R-351, 352 and VR-403.
Inoperative tone control.	● At "TREBLE"	● Check C-408, 409, C-458, 459, R-411, 412, R-461, 462, R-415, 465, VR-402, 452.
	● At "BASS"	● Check C-407, 457, C-416, 466, R-409, 459, R-410, 460, VR-401, 451.

FM RECEPTION TROUBLE

Symptom	REMARKS	
No FM reception.	● FM front-end, FM-IF or MPX circuit defective.	● Check SELECTOR switch. Check voltage of IC-801, 802 and FLT-801.
Sound satisfictory but stereo indicator lamp not lit.	● Defective operation of stereo beacon circuit or defective lamp.	● Check voltage of TR-604 to TR-608 printed board AA-856. Replace lamp if defective.
Incomplete separation during FM reception.	● Defective FM multiplex circuit.	● Defective circuit of TR-601 to 603, TR-610 to 613 on printed board AA-856. ● Adjust VR-601 with measuring equipment or stereo FM wave.
Excessive noise.	● Weak broadcasting signal or weak input signal to amplifier.	● Orient or replace antenna with a higher gain. Antenna feeder open or loosely connected.
Intermittent noises.	● Due to automobile ignition noises.	● Install FM antenna as far away from streets as possible.
Noise increases during FM reception.	● Due to peculiar FM receiver noise when signal is very weak.	● Set DISTANCE switch to ON. If sensitivity of FM receiver decreases, check or re-adjust FM-IF circuit.
Stereo indicator lamp always lit.	● Defective FM multiplex circuit.	● Defective transistor TR-607, 608.

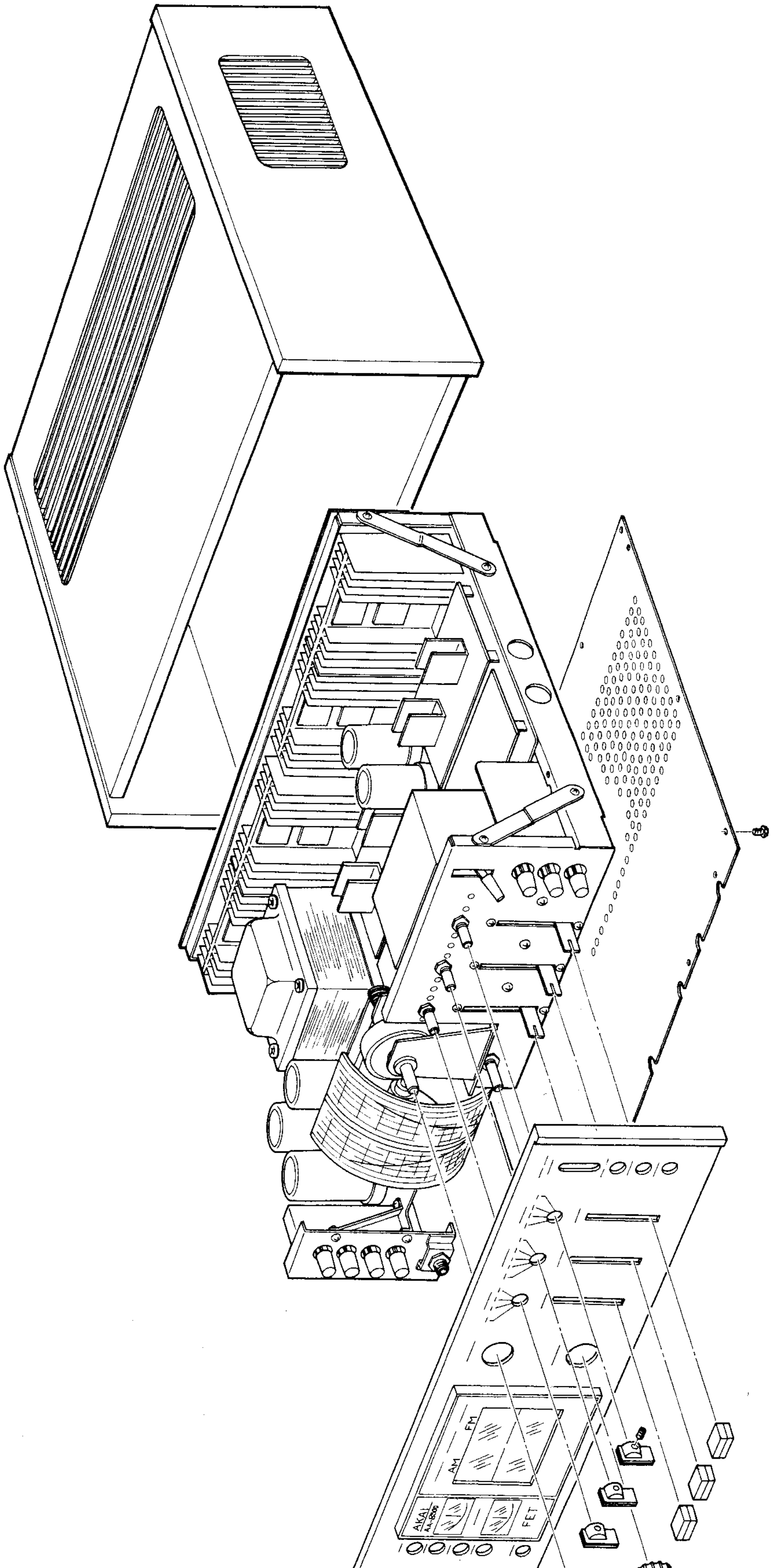
AM RECEPTION TROUBLE

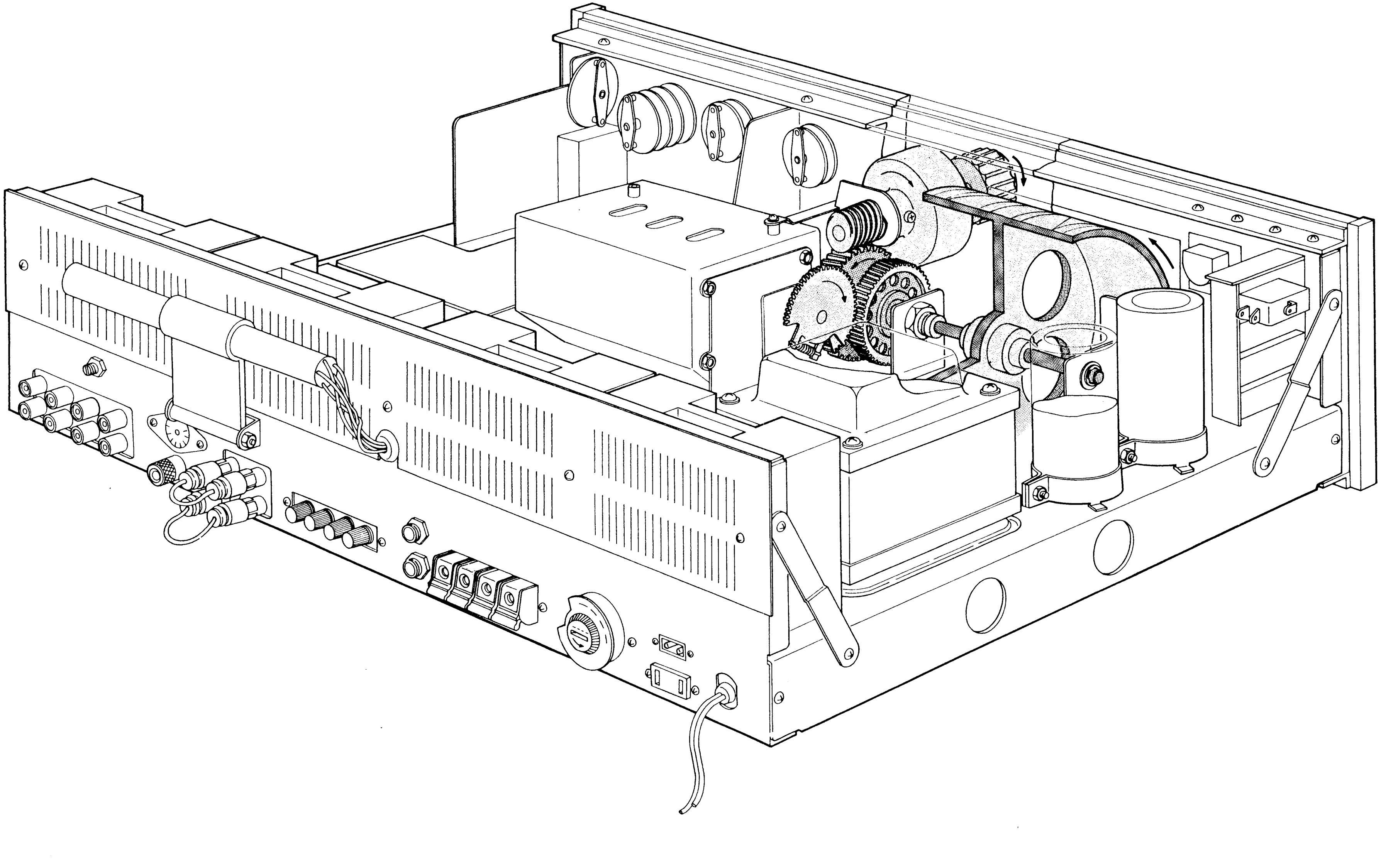
Symptom	REMARKS	
No AM reception.	● Defective AM IF circuit AA-859.	● Check voltage of TR-901 – TR-904. Check selector switch.
Excessive Noise.	● Weak signal.	● Use external antenna.
Hum when tuned to broadcasting station.	● Due to transmission lines or generating noise of electrical apparatuses (e.g. flourescent lamps, motors, etc.) nearby.	● When bar antenna is used, reposition until noise is minimized. Reset AC cord plug.
Buzzing Noise.	● Due to a TV set nearby.	● Relocate amplifier.

WHEN EXTERNAL INPUT IS USED (Tape recorder, recorder, etc.)

Symptom	REMARKS	
No sound or Increase of noise or Hum.	● Faulty connection.	● Check connections and polarity referring to operator's manual. ● Check selector switch.

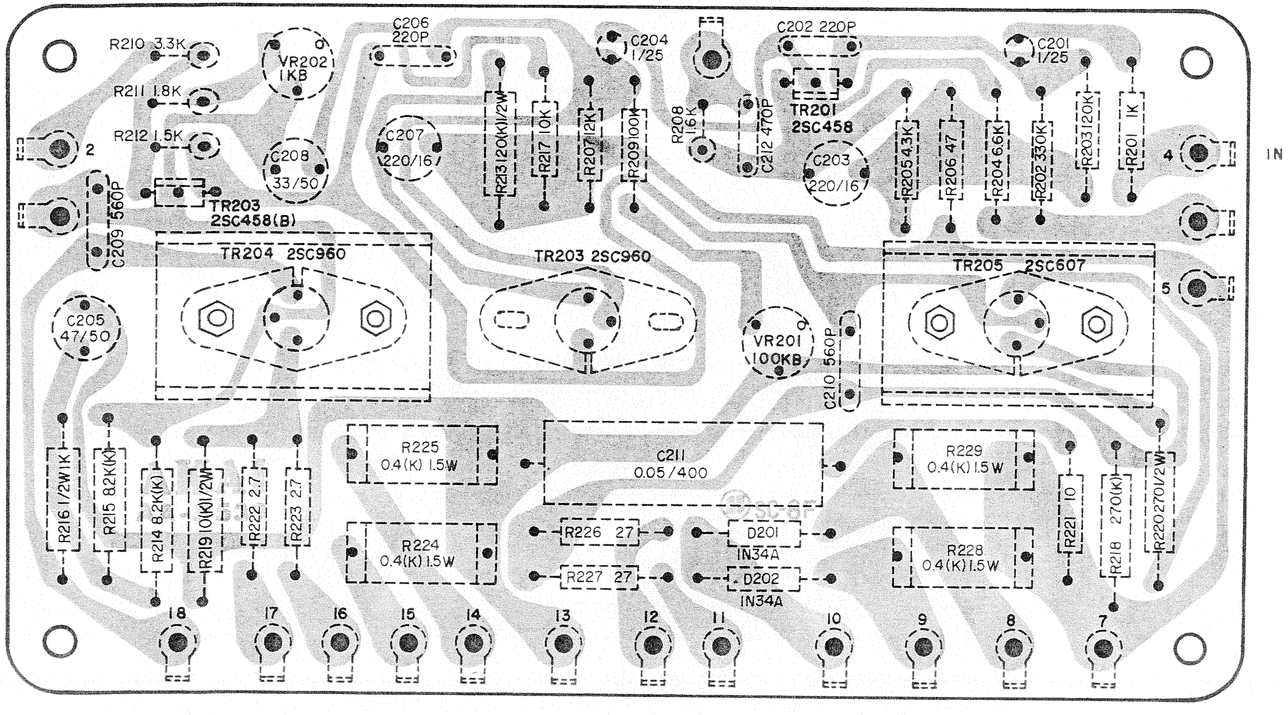
V. DISASSEMBLY / DIAL STRINGS


FM
AM
AKAI
AA-8500
FET



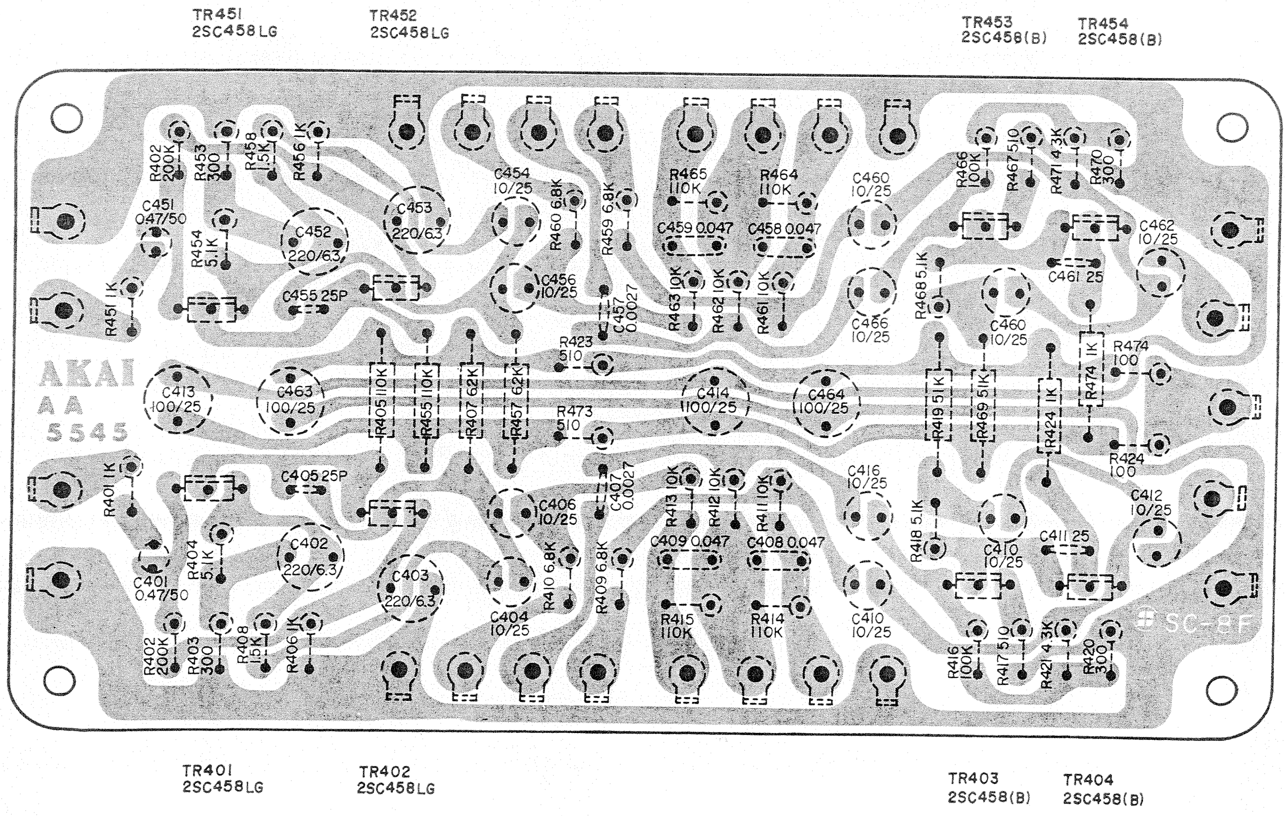
VI. COMPOSITE VIEW OF COMPONENTS

MAIN AMPLIFIER P.C. BOARD (AA-5539)



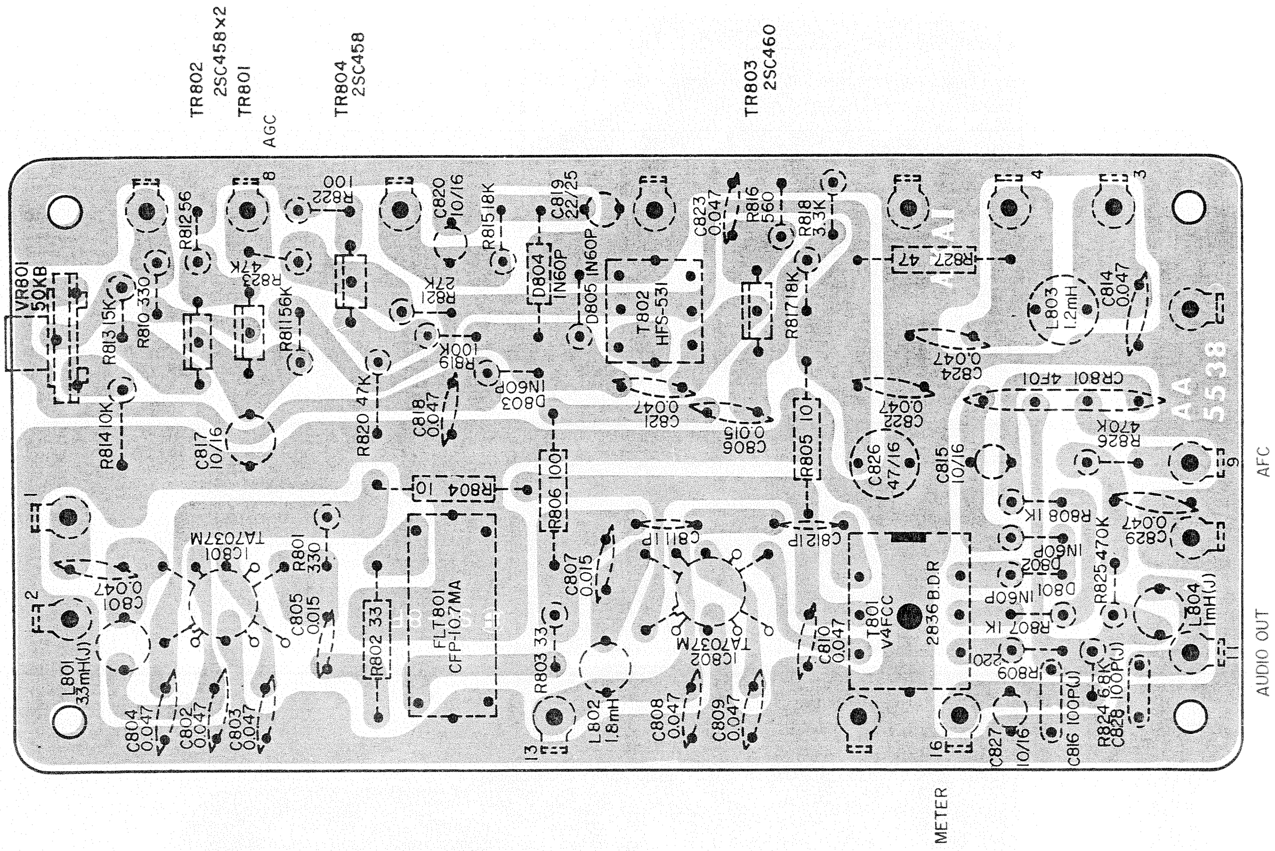
R210 3.3K
VR202 1KB
C206 220P
C204 1/25
C202 220P
C201 1/25
R211 1.8K
R212 1.5K
C207 220/16
C208 33/50
R213 120(K)1/2W
R217 10K
R207 12K
R209 100K
R208 1.6K
C212 470P
TR201 2SC458
C203 220/16
R205 4.3K
R206 47
R204 6.6K
R202 330K
R203 120K
R201 1K
2
4
IN
TR203 2SC458(B)
C209 560P
TR204 2SC960
TR203 2SC960
TR205 2SC607
5
C205 47/50
VR201 100KB
C210 560P
R216 1/2W 1K
R215 8.2K(K)
R214 8.2K(K)
R219 10(K)1/2W
R222 2.7
R223 27
R225 0.4(K) 1.5W
C211 0.05/400
R229 0.4(K) 1.5W
R224 0.4(K) 1.5W
R226 27
R227 27
D201 IN34A
D202 IN34A
R228 0.4(K)1.5W
R221 10
R218 270(K)
R220 270 1/2W
18
17
16
15
14
13
12
11
10
9
8
7

PRE-AMPLIFIER P.C. BOARD (AA-5545)

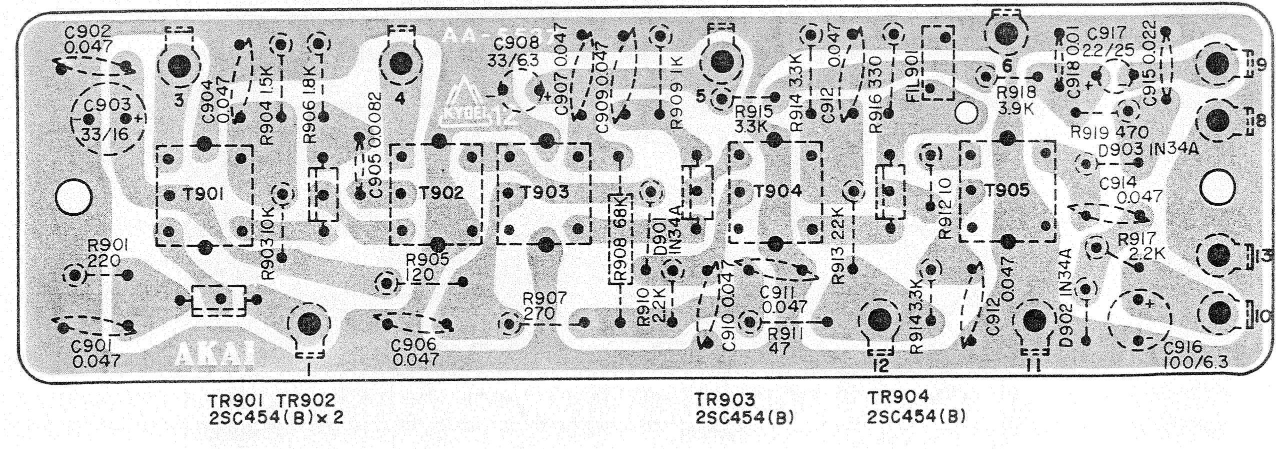


TR451 2SC458LG
TR452 2SC458LG
TR453 2SC458(B)
TR454 2SC458(B)
R402 200K
R453 300
R458 1.5K
R456 1K
C451 0.47/50
C454 10/25
C453 220/63
R460 6.8K
R459 6.8K
R465 110K
R464 110K
C460 10/25
R466 100K
R467 510
R471 4.3K
R470 300
C452 220/63
R454 5.1K
C459 0.047
C458 0.047
C462 10/25
R451 1K
C455 25P
C456 10/25
C457 0.0027
R463 10K
R462 10K
R461 10K
C466 10/25
R468 5.1K
C460 10/25
C461 25
R423 510
R474 100
AKAI AA 5545
C413 100/25
C463 100/25
R405 110K
R455 110K
R407 62K
R457 62K
R473 510
C414 100/25
C464 100/25
R419 51K
R469 51K
R424 1K
R474 1K
R424 100
R401 1K
C405 25P
C406 10/25
C407 0.0027
R413 10K
R412 10K
R411 10K
C416 10/25
R418 5.1K
C412 10/25
C411 25
C410 10/25
R404 5.1K
C402 220/6.3
C403 220/6.3
C401 0.47/50
R410 6.8K
R409 6.8K
C409 0.047
C408 0.047
C404 10/25
R415 110K
R414 110K
C410 10/25
R402 200K
R403 300
R408 1.5K
R406 1K
R416 100K
R417 510
R421 4.3K
R420 300
SC-8F
TR401 2SC458LG
TR402 2SC458LG
TR403 2SC458(B)
TR404 2SC458(B)

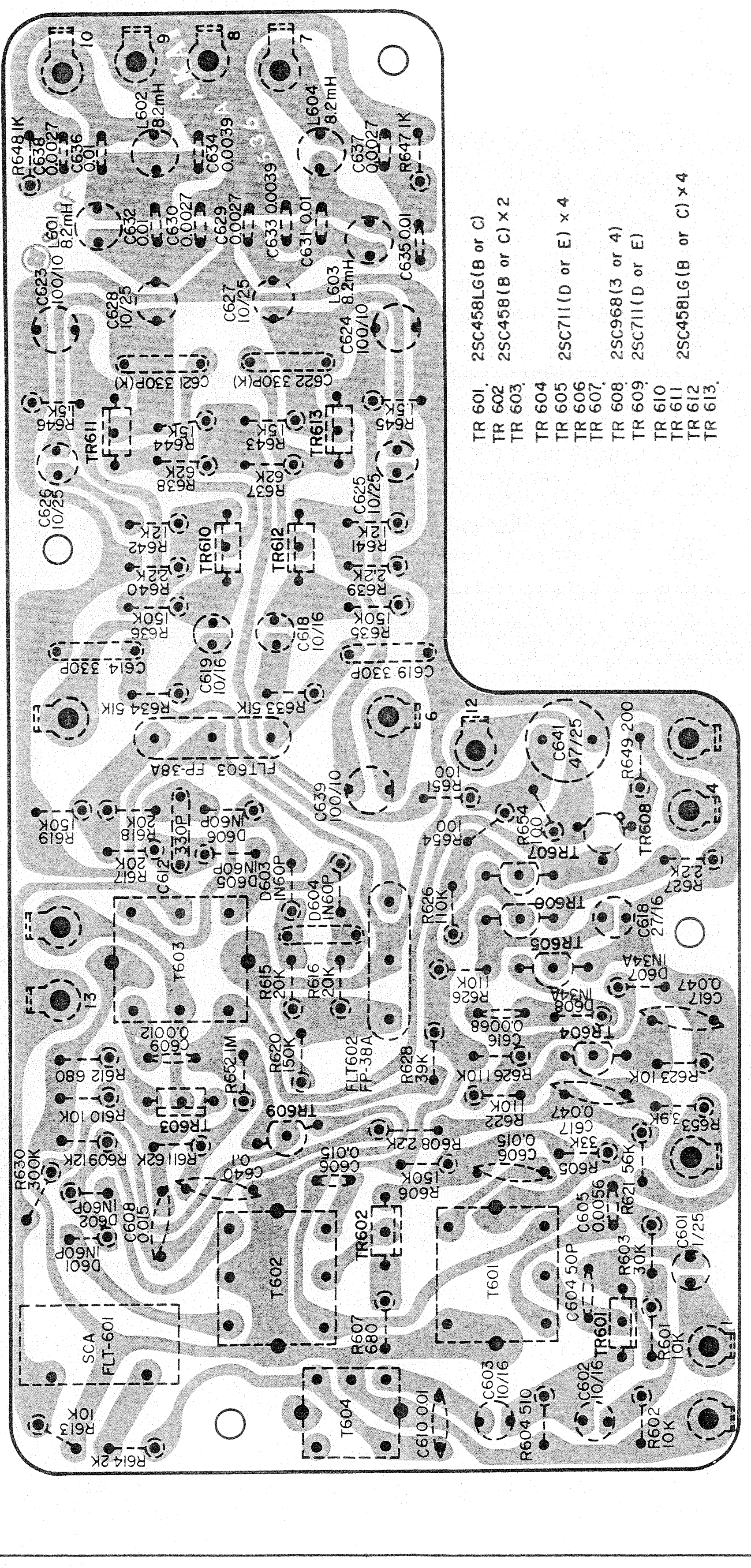
FM-IF P.C. BOARD (AA-5538)


TR802
2SC458×2
TR801
AGC
TR804
2SC458
TR803
2SC460
VR801 50KB
R812 56
R813 15K
R810 330
R823 47K
R811 56K
R814 10K
C817 10/16
R822 100
C820 10/16
R821 27K
R819 100K
R815 18K
D804 1N60P
D805 1N60P
D803 1N60P
C819 22/25
R820 47K
C818 0.047
T802 HFS-531
C823 0.047
R816 560
R818 3.3K
R817 18K
C821 0.047
C806 0.015
R805 10
C826 47/16
C822 0.047
C824 0.047
R827 47
L803 1.2mH
C814 0.047
CR801 4F01
R826 470K
C815 10/16
R808 1K
C829 0.047
D802 1N60P
D801 1N60P
R825 470K
R807 1K
R809 220
L804 1mH(J)
R824 6.8K
C828 100P(J)
C816 100P(J)
C827 10/16
R804 10
R806 100
IC801 TA7037M
R801 330
C801 0.047
L801 33mH(J)
C805 0.015
R802 33
FLT801 CFP-10.7MA
C807 0.015
C811 1P
C812 1P
IC802 TA7037M
T801 V4FCC
2836BDR
R803 33
L802 1.8mH
C808 0.047
C809 0.047
C810 0.047
C804 0.047
C802 0.047
C803 0.047
AA 5538
AKAI
1
2
3
4
8
9
11
13
16
AFC
AUDIO OUT
METER

AM-IF P.C. BOARD (AA-5537)

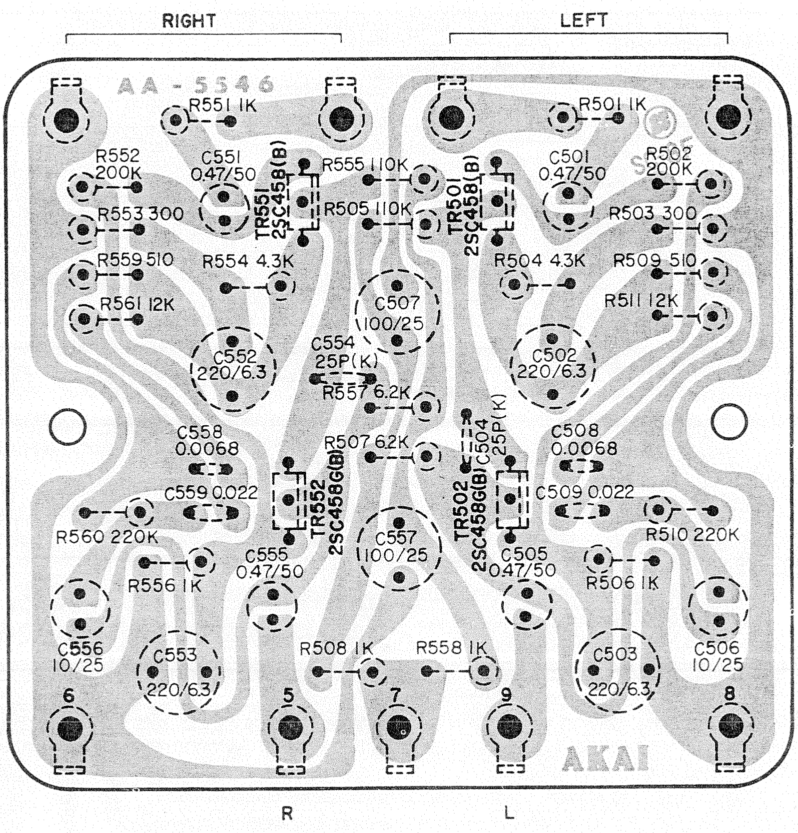

C902 0.047
C903 33/16
3
C904 0.047
R904 1.5K
R906 1.8K
C905 0.0082
4
C908 33/63
C907 0.047
C909 0.047
R909 1K
5
R915 3.3K
R914 3.3K
C912 0.047
R916 330
FIL901
6
R918 3.9K
C918 0.01
C917 22/25
C915 0.022
R919 470
D903 1N34A
C914 0.047
R917 2.2K
C916 100/6.3
T901
T902
T903
T904
T905
R901 220
R903 10K
R905 120
R907 270
R908 68K
D901 1N34A
R910 2.2K
C910 0.047
C911 0.047
R911 47
R913 22K
R912 10
R914 3.3K
C912 0.047
D902 1N34A
C901 0.047
C906 0.047
AA-5537
KYDEN 12
AKAI
1
8
9
10
11
12
13
TR901 TR902
2SC454(B)×2
TR903
2SC454(B)
TR904
2SC454(B)

MPX P.C. BOARD (AA-5536)

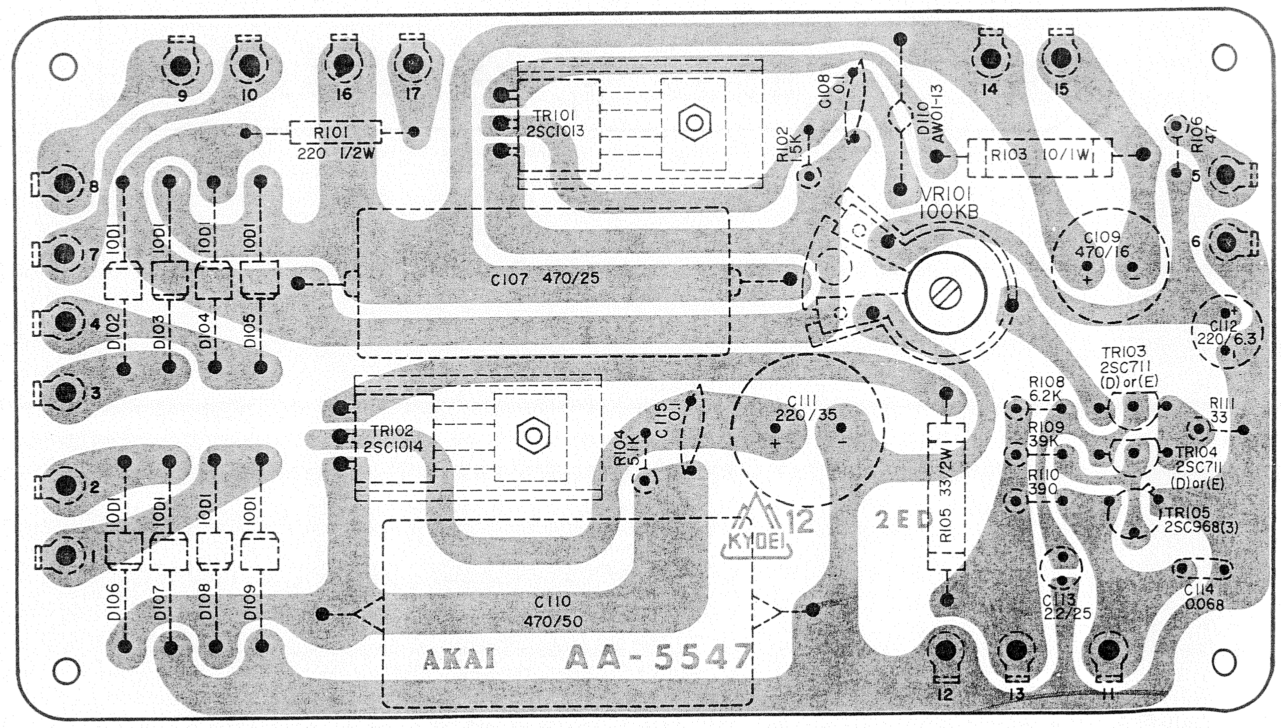

AKAI
5536 A
TP2
1
2
4
6
7
8
9
10
12
13
L601 8.2mH
L602 8.2mH
L603 8.2mH
L604 8.2mH
R648 1K
R647 1K
C638 0.0027
C636 0.01
C634 0.0039
C637 0.0027
C632 0.01
C630 0.0027
C629 0.0027
C633 0.0039
C631 0.01
C635 0.01
C623 100/10
C624 100/10
C628 10/25
C627 10/25
C621 330P(K)
C622 330P(K)
R646 1.5K
R645 1.5K
R644 1.5K
R643 1.5K
R638 62K
R637 62K
TR611
TR613
TR610
TR612
C626 10/25
C625 10/25
R642 12K
R641 12K
R640 2.2K
R639 2.2K
R636 150K
R635 150K
C619 10/16
C618 10/16
C614 330P
C619 330P
R634 51K
R633 51K
FLT603 FP-38A
C639 100/10
R651 100
C641 47/25
R649 200
R654 100
TR607
TR608
R619 150K
R618 20K
R617 20K
C612 330P
D606 1N60P
D605 1N60P
D603 1N60P
D604 1N60P
R626 110K
R627 2.2K
TR606
C618 27/16
TR605
D607 1N34A
C617 0.047
T603
R615 20K
R616 20K
D608 1N34A
C616 0.0068
TR604
C609 0.0012
R652 1M
R620 150K
FLT602 FP-38A
R628 39K
R612 680
R623 10K
R610 10K
TR603
TR609
R622 110K
C617 0.047
R653 3.9K
R630 300K
R609 12K
R611 62K
C640 0.1
C606 0.015
R608 2.2K
C606 0.015
R605 33K
D602 1N60P
D601 1N60P
C608 0.015
R606 150K
R621 56K
C605 0.0056
T602
TR602
T601
C604 50P
R603 30K
C601 1/25
TR601
SCA FLT-601
R607 680
R601 10K
R613 10K
T604
C610 0.01
C603 10/16
C602 10/16
R604 510
R602 10K
R614 2K

TR 601,	2SC458LG (B or C)
TR 602	2SC458 (B or C) × 2
TR 603,	
TR 604	
TR 605	2SC711 (D or E) × 4
TR 606	
TR 607,	
TR 608,	2SC968 (3 or 4)
TR 609,	2SC711 (D or E)
TR 610	
TR 611	2SC458LG (B or C) × 4
TR 612	
TR 613,	

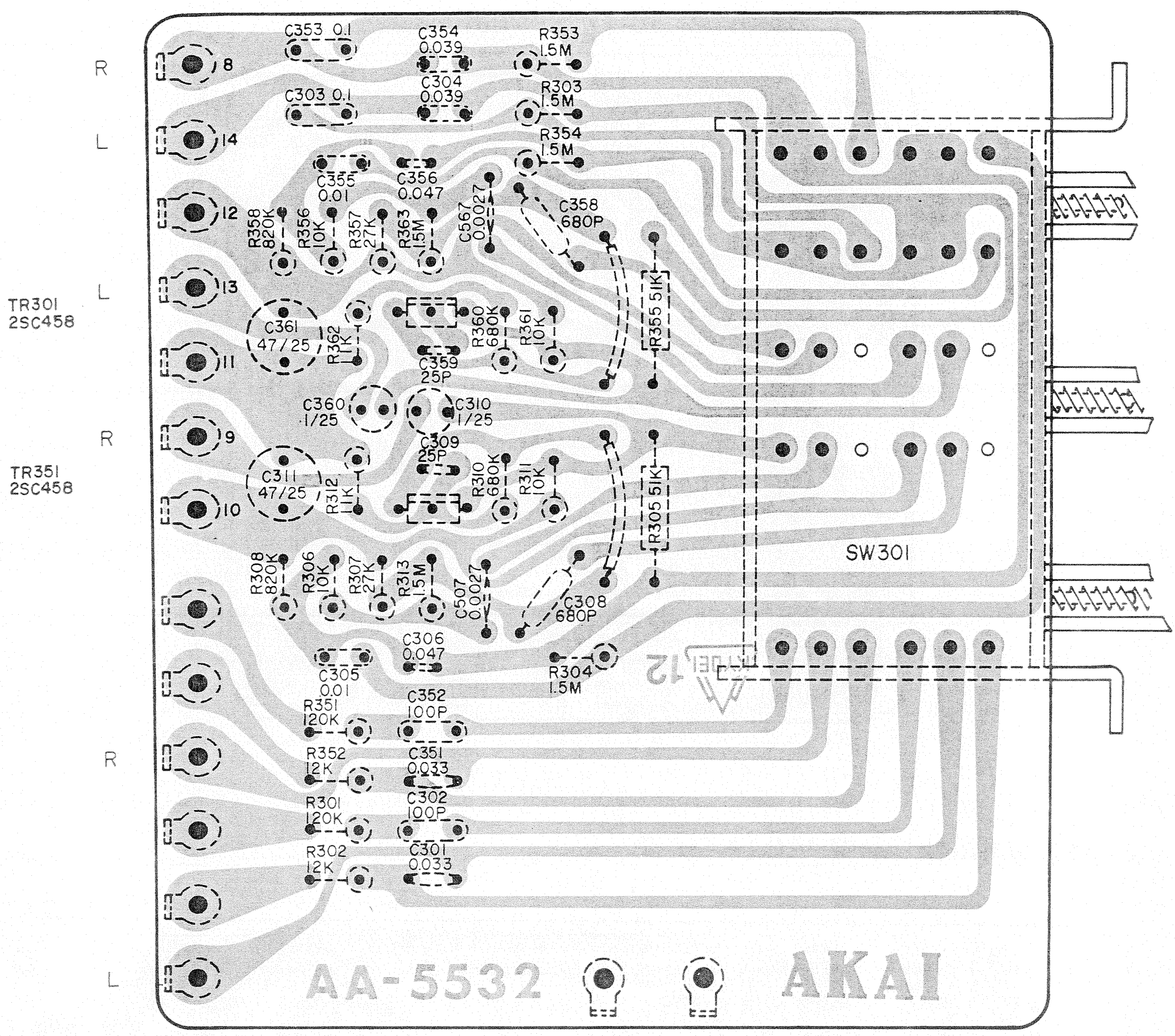
EQUALIZATION P.C. BOARD (AA-5546)

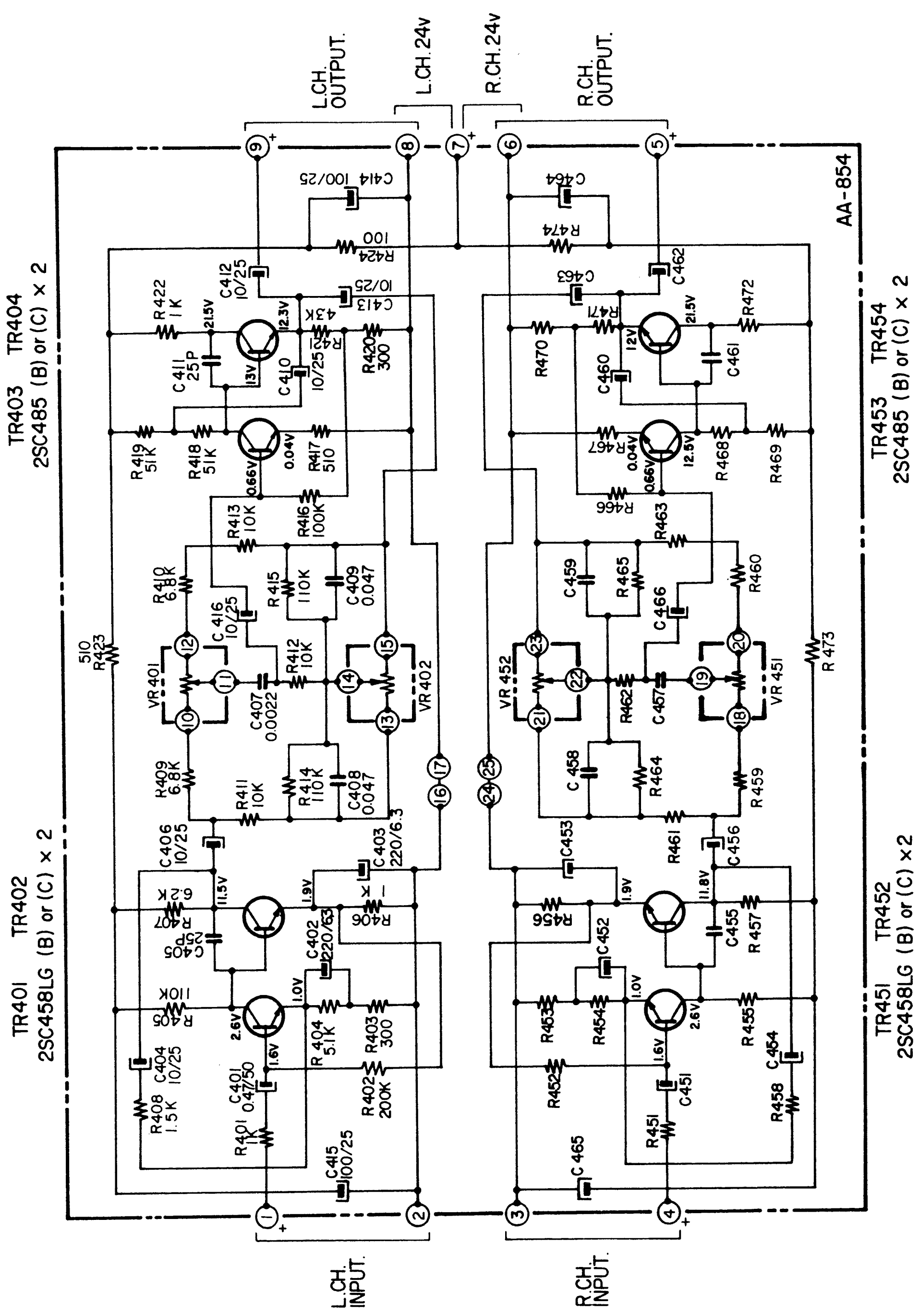

RIGHT
LEFT
AA-5546
R551 1K
R501 1K
R552 200K
C551 0.47/50
TR551 2SC458(B)
R555 110K
TR501 2SC458(B)
C501 0.47/50
R502 200K
R553 300
R505 110K
R503 300
R559 510
R554 4.3K
R504 4.3K
R509 510
R561 12K
C507 100/25
R511 12K
C552 220/6.3
C554 25P(K)
C502 220/6.3
R557 6.2K
C504 25P(K)
C558 0.0068
R507 6.2K
C508 0.0068
C559 0.022
TR552 2SC458G(B)
TR502 2SC458G(B)
C509 0.022
R560 220K
C557 100/25
R510 220K
C555 0.47/50
C505 0.47/50
R556 1K
R506 1K
C556 10/25
C553 220/6.3
R508 1K
R558 1K
C503 220/6.3
C506 10/25
6
5
7
9
8
AKAI
R
L

POWER SOURCE P.C. BOARD (AA-5547)

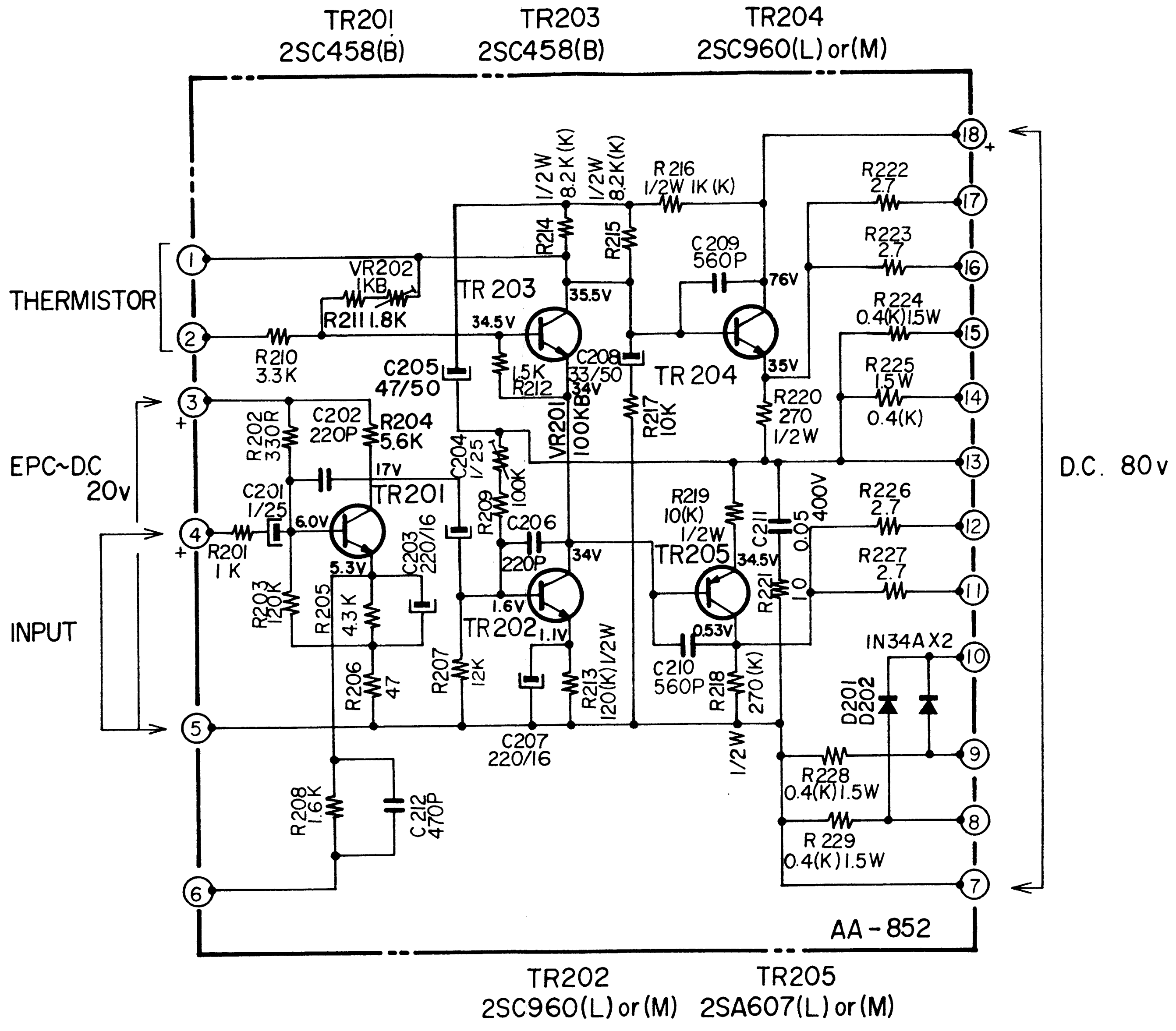

9
10
16
17
TR101 2SC1013
C108 0.1
D110 AW01-13
14
15
R106 47
R101 220 1/2W
R102 15K
R103 10/1W
8
5
VR101 100KB
7
6
10D1
10D1
10D1
10D1
C107 470/25
C109 470/16
4
D102
D103
D104
D105
C112 220/6.3
3
TR103 2SC711 (D) or (E)
R108 6.2K
R111 33
TR102 2SC1014
C115 0.1
R104 5.1K
C111 220/35
R109 39K
TR104 2SC711 (D) or (E)
R110 390
2
10D1
10D1
10D1
10D1
KYOEI 12
2ED
R105 33/2W
TR105 2SC968(3)
1
D106
D107
D108
D109
C110 470/50
C113 22/25
C114 0.068
AKAI
AA-5547
12
13
11

FILTER P.C. BOARD (AA-5532)

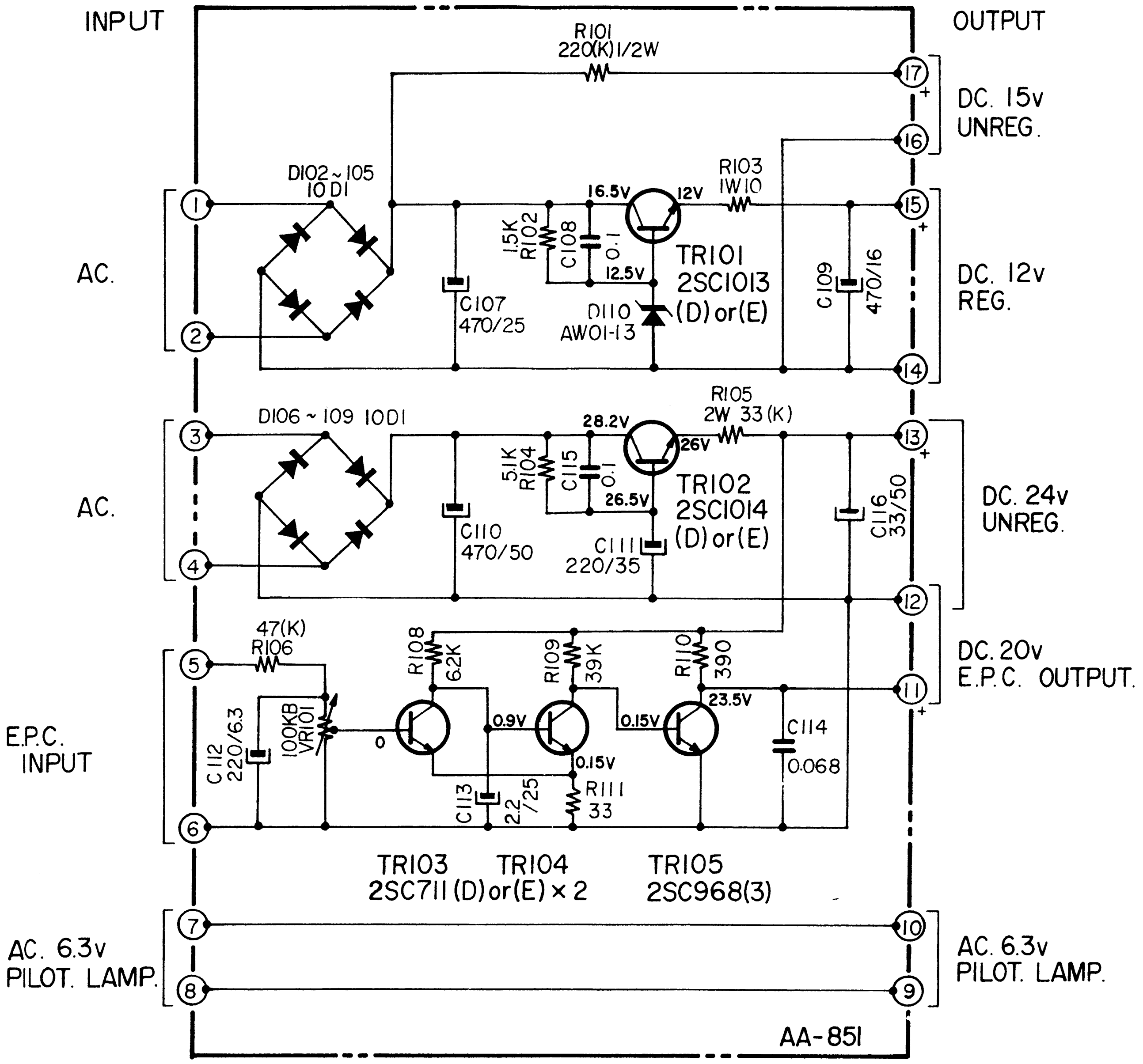

R
L
TR301
2SC458
L
R
TR351
2SC458
R
L
8
14
12
13
11
9
10
C353 0.1
C303 0.1
C354
0.039
C304
0.039
R353
1.5M
R303
1.5M
R354
1.5M
C355
0.01
C356
0.047
R358
820K
R356
10K
R357
27K
R363
1.5M
C567
0.0027
C358
680P
R355 51K
C361
47/25
R362
1.1K
R360
680K
R361
10K
C359
25P
C360
1/25
C310
1/25
C309
25P
C311
47/25
R312
1.1K
R310
680K
R311
10K
R305 51K
SW301
R308
820K
R306
10K
R307
27K
R313
1.5M
C507
0.0027
C308
680P
C306
0.047
C305
0.01
R304
1.5M
R351
120K
C352
100P
R352
12K
C351
0.033
R301
120K
C302
100P
R302
12K
C301
0.033
AA-5532
AKAI


L.CH. OUTPUT.
L.CH. 24v
R.CH. 24v
R.CH. OUTPUT.
L.CH. INPUT.
R.CH. INPUT.
AA-854
TR403 TR404 2SC485 (B) or (C) × 2
TR401 TR402 2SC458LG (B) or (C) × 2
TR453 TR454 2SC485 (B) or (C) × 2
TR451 TR452 2SC458LG (B) or (C) × 2
VR401
VR402
VR451
VR452

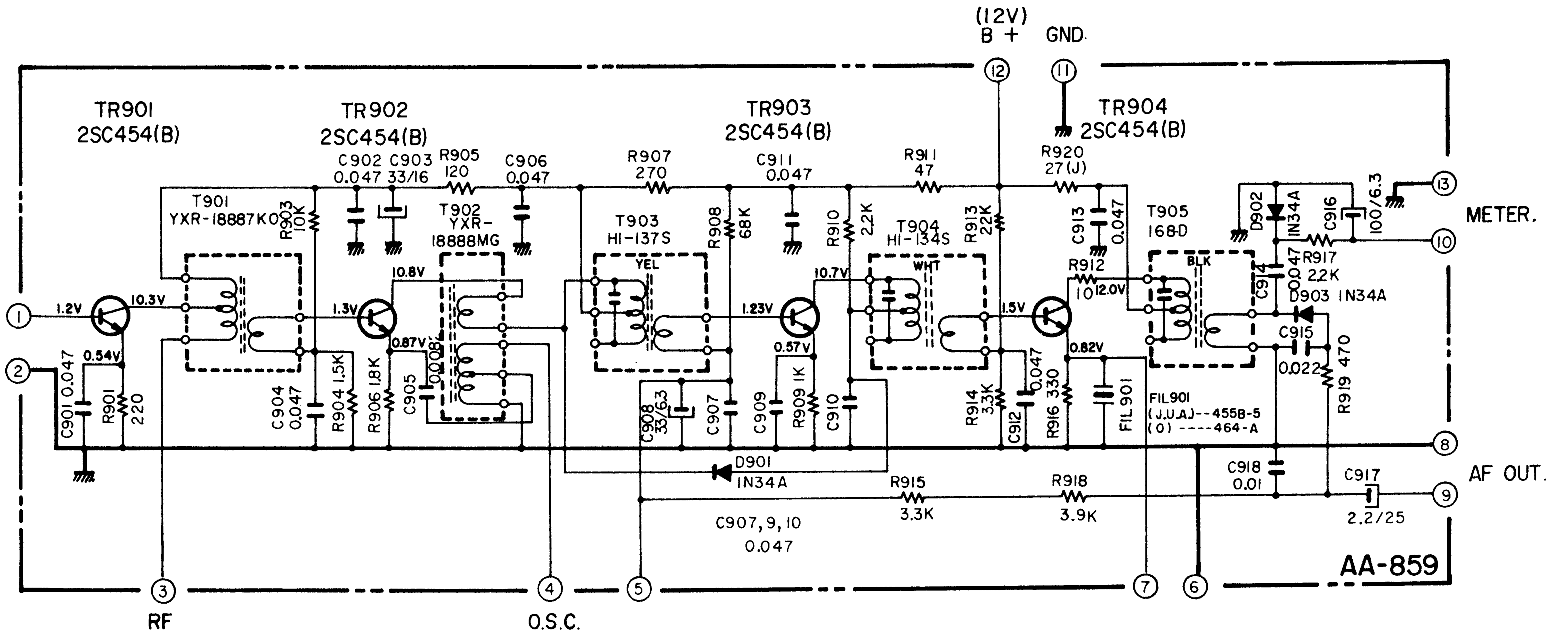
AA-8500 PRE. AMP. SCHEMATIC DIAGRAM. No.9-7


TR201 2SC458(B)
TR203 2SC458(B)
TR204 2SC960(L) or (M)
TR202 2SC960(L) or (M)
TR205 2SA607(L) or (M)
THERMISTOR
EPC~DC 20v
INPUT
D.C. 80v
AA-852
IN34A X2
D201
D202
VR202 1KB
VR201 100KB

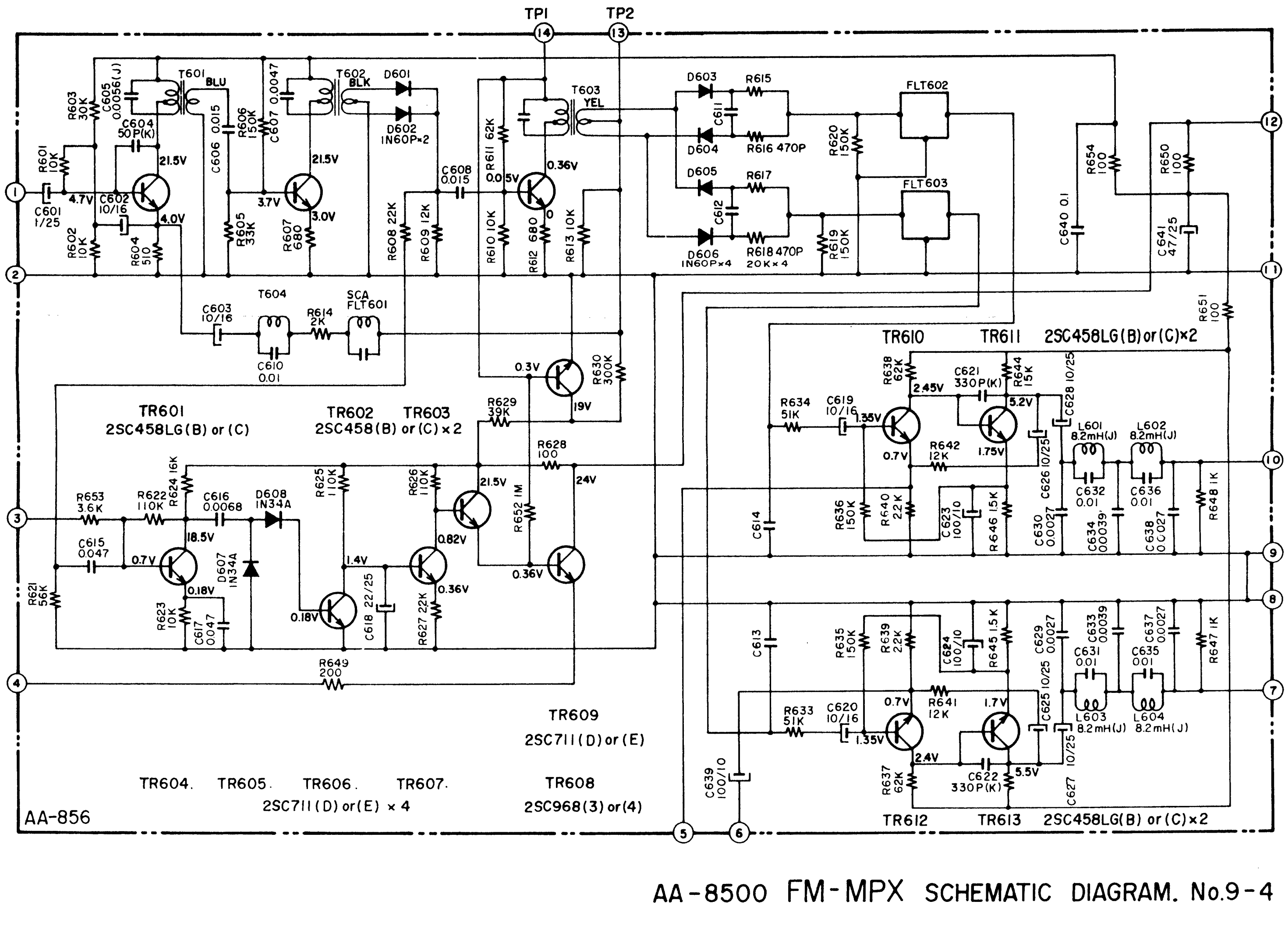
AA-8500 POWER AMP. SCHEMATIC DIAGRAM. No.9-8


INPUT
OUTPUT
R101
220(K)1/2W
17
16
DC. 15v
UNREG.
D102 ~ 105
10D1
1
2
AC.
16.5V
12V
R103
1W10
15
14
1.5K
R102
C108
0.1
12.5V
TR101
2SC1013
(D) or (E)
C107
470/25
D110
AW01-13
C109
470/16
DC. 12v
REG.
D106 ~ 109 10D1
3
4
AC.
28.2V
R105
2W 33(K)
26V
13
12
5.1K
R104
C115
0.1
26.5V
TR102
2SC1014
(D) or (E)
C110
470/50
C111
220/35
C116
33/50
DC. 24v
UNREG.
47(K)
R106
5
6
E.P.C.
INPUT
C112
220/6.3
100KB
VR101
0
R108
6.2K
R109
39K
R110
390
0.9V
0.15V
0.15V
23.5V
C114
0.068
C113
2.2/25
R111
33
11
DC. 20v
E.P.C. OUTPUT.
TR103 TR104
2SC711 (D) or (E) × 2
TR105
2SC968(3)
7
8
AC. 6.3v
PILOT. LAMP.
10
9
AC. 6.3v
PILOT. LAMP.
AA-851

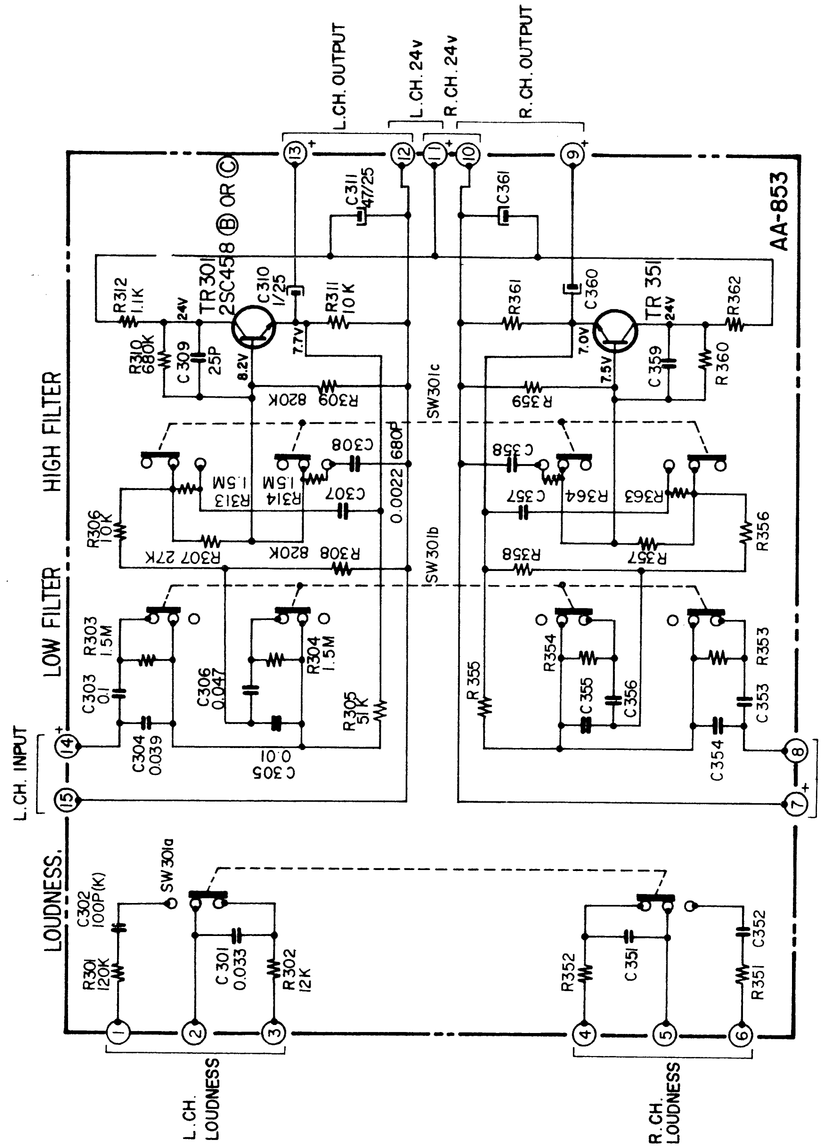
AA-8500 POWER SUPPLY SCHEMATIC DIAGRAM. No.9-9


(12V)
B +
GND.
TR901
2SC454(B)
TR902
2SC454(B)
TR903
2SC454(B)
TR904
2SC454(B)
T901
YXR-18887KO
T902
YXR-18888MG
T903
HI-137S
YEL
T904
HI-134S
WHT
T905
168D
BLK
FIL901
(J.U.AJ--4558-5
(O) ----464-A
D901
IN34A
D902
IN34A
D903 IN34A
R915
3.3K
R918
3.9K
C907,9,10
0.047
C917
2.2/25
C918
0.01
METER.
AF OUT.
RF
O.S.C.
AA-859

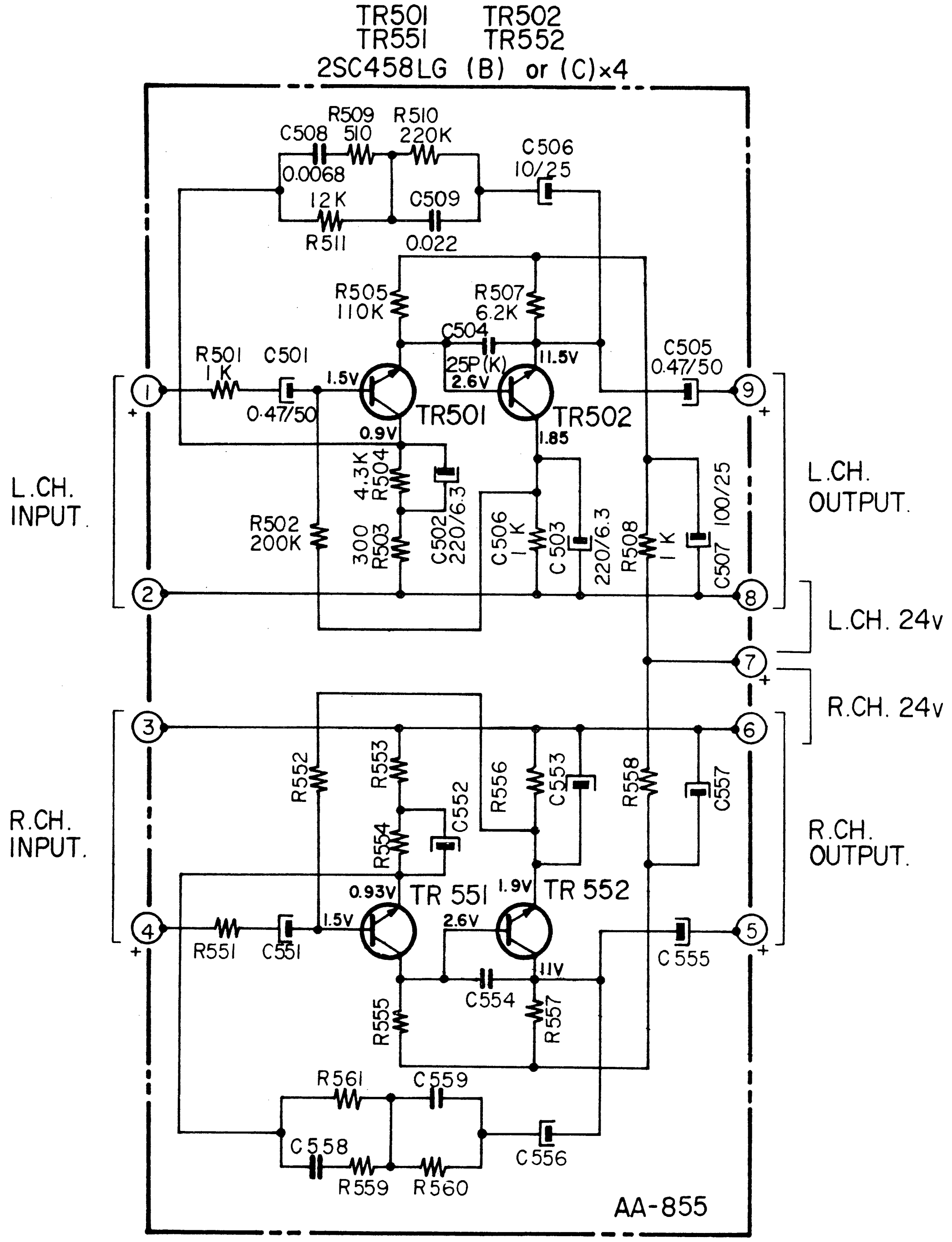
AA-8500 (AM INTER) SCHEMATIC DIAGRAM. No.9-3


TP1
TP2
T601
BLU
T602
BLK
T603
YEL
T604
SCA
FLT601
FLT602
FLT603
D601
D602
IN60P×2
D603
D604
D605
D606
IN60P×4
R618 470P
20K×4
D607
IN34A
D608
IN34A
TR601
2SC458LG(B) or (C)
TR602 TR603
2SC458(B) or (C) × 2
TR610
TR611 2SC458LG(B)or(C)×2
L601
8.2mH(J)
L602
8.2mH(J)
L603
8.2mH(J)
L604
8.2mH(J)
TR609
2SC711(D) or (E)
TR604. TR605. TR606. TR607.
2SC711(D) or(E) × 4
TR608
2SC968(3) or(4)
TR612
TR613 2SC458LG(B) or (C)×2
AA-856

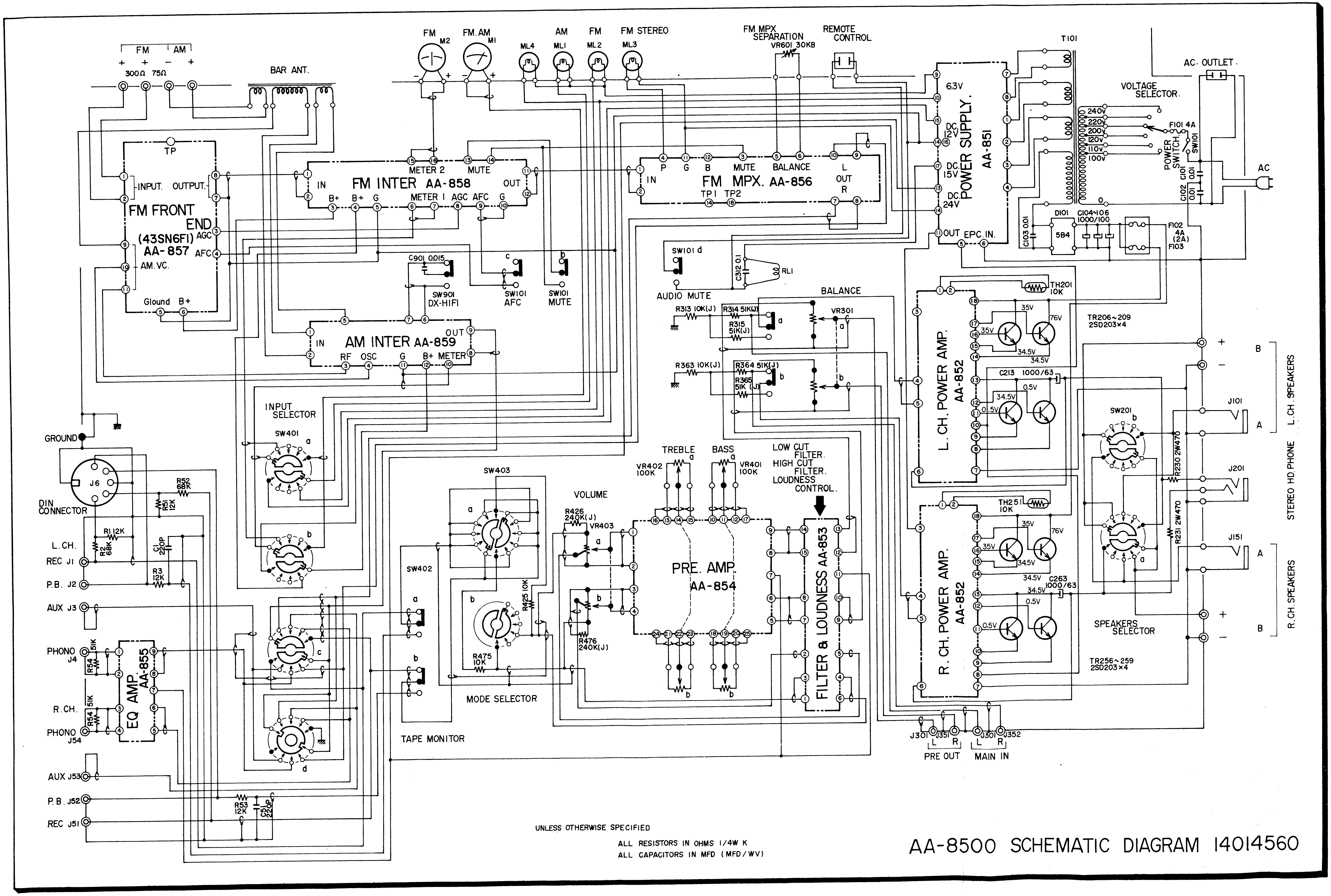
AA-8500 FM-MPX SCHEMATIC DIAGRAM. No.9-4


AA-853
L.CH. OUTPUT
L.CH. 24v
R.CH. 24v
R.CH. OUTPUT
TR301 2SC458 (B) OR (C)
TR 351
C310 1/25
C311 47/25
C361
C360
R312 1.1K
R310 680K
C309 25P
R311 10K
R309 820K
R361
R362
R359
R360
C359
SW301c
SW301b
SW301a
HIGH FILTER
LOW FILTER
LOUDNESS.
R313 1.5M
R314 1.5M
C308 680P
C307 0.0022
R306 10K
R307 27K
R308 820K
C358
C357
R364
R363
R358
R357
R356
R303 1.5M
C303 0.1
C306 0.047
R304 1.5M
R305 51K
C304 0.039
C305 0.01
R355
R354
C355
C356
R353
C353
C354
L.CH. INPUT
R.CH. INPUT
C302 100P(K)
R301 120K
C301 0.033
R302 12K
R352
C351
R351
C352
L.CH. LOUDNESS
R.CH. LOUDNESS
24V
8.2V
7.7V
7.0V
7.5V
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

AA-8500 FILTER SCHEMATIC DIAGRAM. No.9-5


TR501 TR502
TR551 TR552
2SC458LG (B) or (C)×4
C508 0.0068
R509 510
R510 220K
C506 10/25
12K R511
C509 0.022
R505 110K
R507 6.2K
C504 25P(K)
R501 1K
C501 0.47/50
1.5V
2.6V
11.5V
0.9V
1.85
TR501
TR502
C505 0.47/50
R502 200K
4.3K R504
300 R503
C502 220/6.3
C506 1K
C503 220/6.3
R508 1K
C507 100/25
L.CH. INPUT.
L.CH. OUTPUT.
L.CH. 24v
R.CH. 24v
R.CH. INPUT.
R.CH. OUTPUT.
R552
R553
C552
R554
R556
C553
R558
C557
0.93V
1.9V
TR 551
TR 552
1.5V
2.6V
1.1V
R551
C551
C555
R555
C554
R557
R561
C559
C558
C556
R559
R560
AA-855
1
2
3
4
5
6
7
8
9

AA-8500 EQ. AMP. SCHEMATIC DIAGRAM. No.9-6

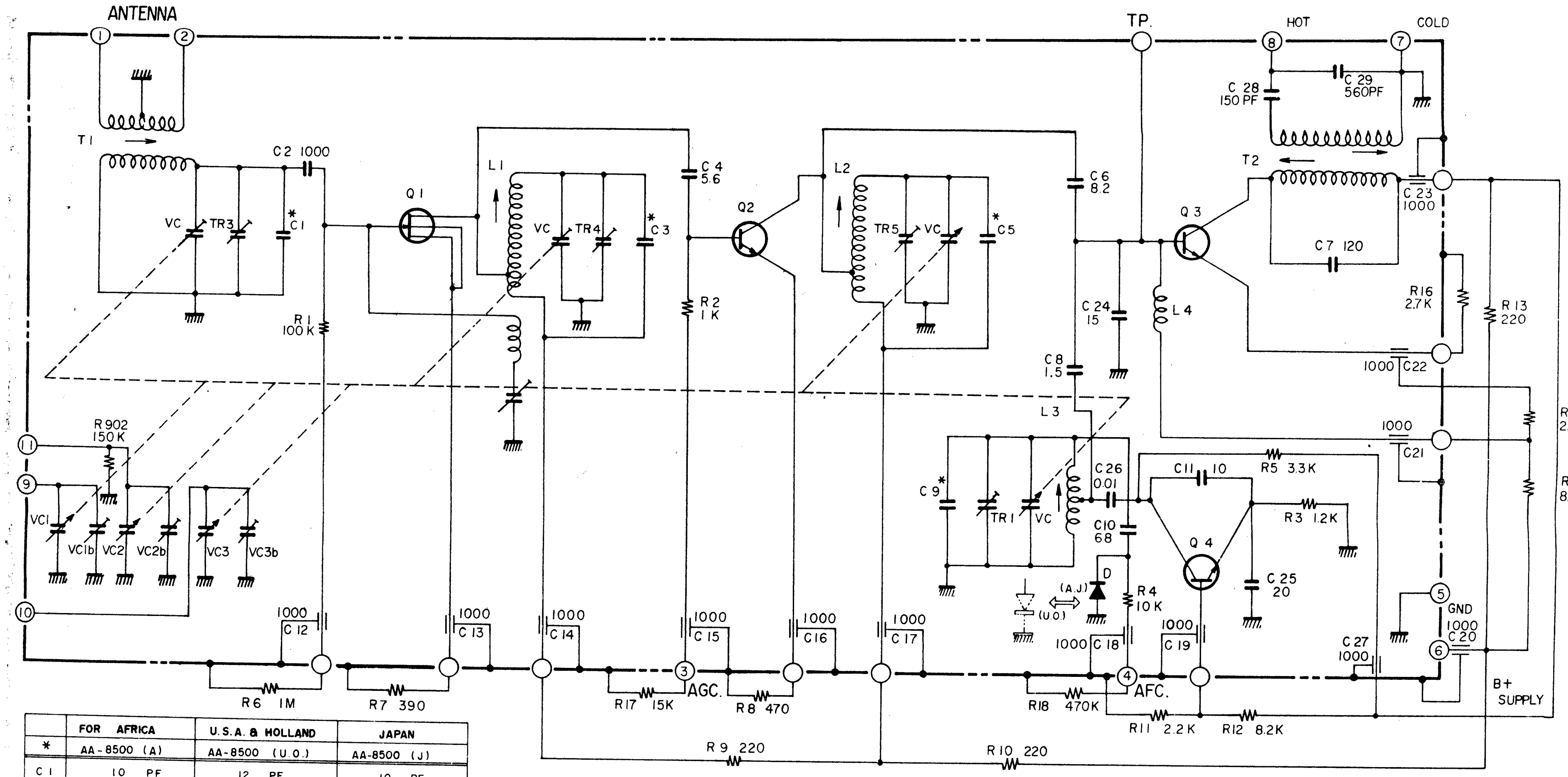

FM AM
300Ω 75Ω
BAR ANT.
FM M2
FM.AM M1
AM FM FM STEREO
ML4 ML1 ML2 ML3
FM MPX SEPARATION
VR601 30KB
REMOTE CONTROL
T101
AC OUTLET
VOLTAGE SELECTOR.
240V 220V 200V 120V 110V 100V
F101 4A
POWER SWITCH
SW101
AC
C101 0.01
C102 0.01
TP
INPUT. OUTPUT.
FM FRONT END
(43SN6F1)
AA-857
AGC
AFC
AM.VC.
Glound B+
METER 2 MUTE
IN
FM INTER AA-858
OUT
B+ B+ G METER 1 AGC AFC G
P G B MUTE BALANCE
FM MPX. AA-856
L OUT R
TP1 TP2
63V
DC 12V
DC 15V
DC 24V
OUT EPC IN.
POWER SUPPLY. AA-851
C103 0.01
D101 5B4
C104~106 1000/100
F102 4A (2A) F103
C901 0.015
SW901 DX-HIFI
SW101 AFC
SW101 MUTE
SW101 d
AUDIO MUTE
C312 0.1
RL1
BALANCE
R313 10K(J)
R314 51K(J)
R315 51K(J)
VR301
R363 10K(J)
R364 51K(J)
R365 51K(J)
AM INTER AA-859
RF OSC G B+ METER
TH201 10K
35V 76V 35V 34.5V 34.5V
TR206~209 2SD203×4
L. CH. POWER AMP. AA-852
C213 1000/63
0.5V
GROUND
INPUT SELECTOR
SW401
J6
DIN CONNECTOR
R52 68K
R51 12K
R1 12K
R2 68K
C1 220P
L.CH.
REC J1
P.B. J2
R3 12K
AUX J3
PHONO J4
R54 51K
EQ AMP. AA-855
R.CH.
PHONO J54
AUX J53
P.B. J52
REC J51
R53 12K
C51 220P
SW403
SW402
TAPE MONITOR
MODE SELECTOR
R425 10K
R475 10K
VOLUME
R426 240K(J)
VR403
R476 240K(J)
TREBLE BASS
VR402 100K
VR401 100K
LOW CUT FILTER.
HIGH CUT FILTER.
LOUDNESS CONTROL.
PRE. AMP. AA-854
FILTER & LOUDNESS AA-853
TH251 10K
R. CH. POWER AMP. AA-852
C263 1000/63
TR256~259 2SD203×4
SW201
R230 2W470
R231 2W470
J101 J201 J151
L.CH. SPEAKERS
STEREO HD.PHONE
R.CH. SPEAKERS
SPEAKERS SELECTOR
J301 J351 J301 J352
PRE OUT MAIN IN

UNLESS OTHERWISE SPECIFIED

ALL RESISTORS IN OHMS 1/4W K

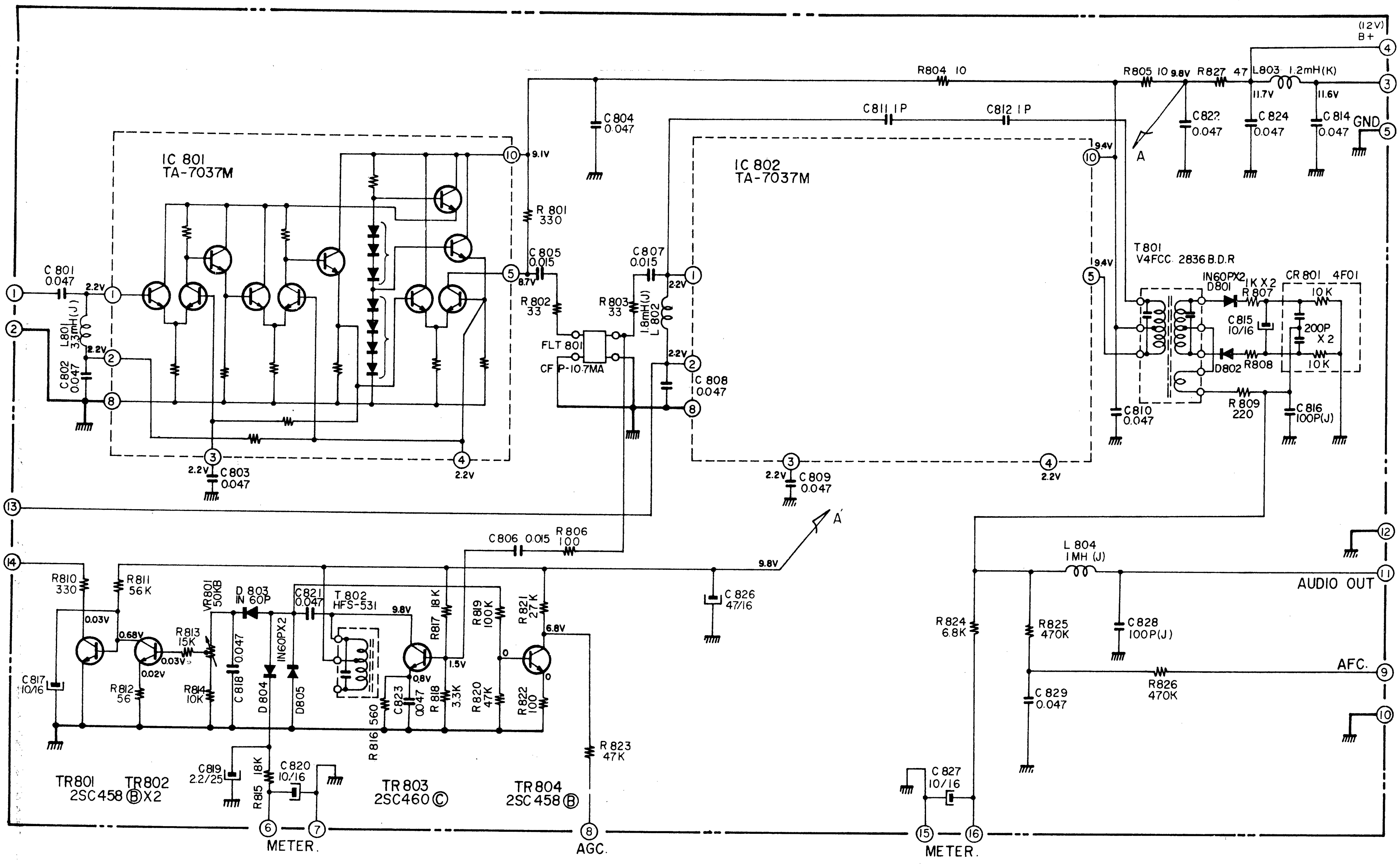
ALL CAPACITORS IN MFD (MFD/WV)

AA-8500 SCHEMATIC DIAGRAM 14014560


ANTENNA
T1
C2 1000
Q1
L1
C4 5.6
Q2
L2
C6 8.2
TP.
HOT
COLD
C28 150 PF
C29 560PF
T2
C23 1000
Q3
C7 120
VC
TR3
C1
TR4
C3
R1 100K
R2 1K
TR5
C5
C24 15
L4
R16 2.7K
R13 220
1000 C22
C8 1.5
L3
R14 2.2K
R15 8.2K
1000 C21
R902 150K
VC1
VC1b
VC2
VC2b
VC3
VC3b
C9
TR1
C26 0.01
C10 68
C11 10
R5 3.3K
R3 1.2K
Q4
C25 20
D
(AJ)
(UO)
R4 10K
GND
1000 C20
1000 C12
1000 C13
1000 C14
1000 C15
1000 C16
1000 C17
1000 C18
1000 C19
C27 1000
R6 1M
R7 390
R17 15K
AGC.
R8 470
R18 470K
AFC.
R11 2.2K
R12 8.2K
B+ SUPPLY
R9 220
R10 220

*	FOR AFRICA AA-8500 (A)	U.S.A. & HOLLAND AA-8500 (U.O.)	JAPAN AA-8500 (J)
C 1	10 PF	12 PF	10 PF
C 3	14 PF	15 PF	20 PF
C 5	14 PF	15 PF	20 PF
C 9	4 PF	15 PF	15 PF

AA-8500 (FRONT END.) SCHEMATIC DIAGRAM. No.9-1


(12V) B+
R804 10
R805 10
9.8V
R827 47
L803 1.2mH(K)
11.7V
11.6V
C804 0.047
C811 1P
C812 1P
C822 0.047
C824 0.047
C814 0.047
GND
IC 801 TA-7037M
IC 802 TA-7037M
9.1V
9.4V
A
R801 330
C801 0.047
2.2V
L801 33mH(J)
C802 0.047
C805 0.015
8.7V
R802 33
R803 33
C807 0.015
L802 1.8mH(J)
FLT 801
CF P-10.7MA
C808 0.047
C803 0.047
C809 0.047
T801 V4FCC 2836B.D.R
IN60PX2
D801
1K X2
R807
CR801 4F01
10K
C815 10/16
200P X2
D802
R808
R809 220
C816 100P(J)
C810 0.047
C806 0.015
R806 100
A'
9.8V
C826 47/16
L804 1MH (J)
AUDIO OUT
R824 6.8K
R825 470K
C828 100P(J)
AFC.
R826 470K
C829 0.047
C827 10/16
R810 330
R811 56K
0.03V
0.68V
0.02V
R812 56
C817 10/16
VR801 50KB
R813 15K
R814 10K
D803 IN60P
C818 0.047
D804 IN60PX2
D805
C821 0.047
T802 HFS-531
0.8V
R817 1.8K
1.5V
R819 100K
R816 560
C823 0.047
R818 3.3K
R820 47K
R821 27K
6.8V
R822 100
R823 47K
C819 2.2/25
R815 1.8K
C820 10/16
TR801 TR802 2SC458 Ⓑ X2
TR803 2SC460 Ⓒ
TR804 2SC458 Ⓑ
METER.
AGC.
METER.

AA-8500 (FM. INTER.) SCHEMATIC DIAGRAM. No.9-2